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ANNUAL SUMMARY
OF
BIRTHS, DEATHS, AND CAUSES OF DEATH
IN
LONDON
AND OTHER LARGE TOWNS,

WITH APPENDIX CONTAINING SIR EDWARD FRANKLAND'S
REPORT ON THE METROPOLITAN WATER SUPPLY,

1897.

PUBLISHED BY THE AUTHORITY OF THE REGISTRAR-GENERAL OF
BIRTHS, DEATHS, AND MARRIAGES IN ENGLAND.



LONDON:

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REGISTRATION LONDON.*

AREA.—The Area of Registration London is 77,389 acres, or 121 square miles, including 2717 acres of tidal water and foreshore; this is equal to 31,319 hectares, or 313 square kilometres. The area of London being 121 square miles is equal to a square of 11 miles to the side. Up to the end of 1882 the total length of streets and roads in the County of London exceeded 1600 miles; from 1882 to the end of 1897 the further construction of 236 miles of new streets has been sanctioned.

ELEVATION.—The population of London resides at a mean elevation of 60 feet (18·2 metres) above approximate mean water at Liverpool; the elevation varying from 1 foot (0·3 metre) in Plumstead Marshes to 441 feet (134·4 metres) at Hampstead, above approximate mean water at Liverpool.

HOUSES.—At the Census in 1891 there were within this area 544,977 inhabited houses, containing an average of 7·7 persons to a house, a slightly lower proportion than in 1871 and 1881.

ANNUAL RATABLE VALUE.—The Annual Ratable Value of Property within Registration London in 1891, as assessed in accordance with the Valuation (Metropolis) Act, 1869, was 32,932,967*l*.† (For Annual Ratable Value of Greater London in 1891, see Table 9.)

DENSITY (1897).—148 persons to a hectare; 59·8 to an acre; 38,253 to a square mile. (In these calculations no account is taken of tidal water and foreshore.)

AVERAGE ANNUAL RATE OF INCREASE OF POPULATION	$\left\{ \begin{array}{l} 1861-71 - 1\cdot015223 \\ 1871-81 - 1\cdot016141 \\ 1881-91 - 1\cdot009928 \\ 1891-96 - 1\cdot009320 \end{array} \right.$
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1897.

POPULATION	{ Males ... 2,109,588 }	PERSONS...	4,463,169
(Estimated to the middle of the year.)			{ Females... 2,353,581 }		
MARRIAGES	...	...	...	...	41,223
PERSONS MARRIED	...	...	...	...	82,446
ANNUAL RATE OF PERSONS MARRIED PER 1000 OF THE POPULATION					18·5
BIRTHS	...	...	{ Males ... 68,004 }	PERSONS...	133,618
			{ Females ... 65,614 }		
ANNUAL RATE OF BIRTHS PER 1000 OF THE POPULATION					30·0
DEATHS	...	...	{ Males ... 42,027 }	PERSONS...	80,943
			{ Females ... 38,916 }		
ANNUAL RATE OF MOR-	...	...	{ Males ... 19·9 }	PERSONS...	18·2
TALITY PER 1000	...	...	{ Females ... 16·5 }		
EXCESS OF REGISTERED BIRTHS OVER DEATHS					52,675
ESTIMATED INCREASE OF POPULATION DURING THE YEAR					41,406

* Registration London is co-extensive with the Administrative County of London except that the hamlet or civil parish of Penge is excluded from Registration London, although forming part of the County of London. The facts concerning new streets and roads were supplied by the Clerk to the London County Council.

† This information is derived from a return of the Gross and Ratable Value of Property in the Metropolis issued by the London County Council.

ANNUAL SUMMARY.

LONDON AND OTHER LARGE TOWNS,

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1897.

*General Register Office, Somerset House,
12th March 1898.*

The 33 Great Towns.

The estimated population of the thirty-three great towns of England and Wales in the middle of the year 1897 was 10,992,524. The births registered in the course of the 52 weeks ending 1st January 1898 numbered 336,740, and were in the proportion of 30·7 per 1000 of the estimated population. The deaths registered within the same period were 209,412 in number, and corresponded to a rate of 19·1 per 1000 of the population; this rate was 1·5 per 1000 below the mean rate for the thirty-three great towns in the preceding ten years, and with two exceptions was below the rate recorded in any one of these years.

The general death-rates in 1897, calculated without reference either to sex or to age, varied considerably in these great towns, ranging from 13·1 in Croydon to 24·4 in Preston and in Liverpool. It has been pointed out, however, in previous Annual Summaries that, in consequence of the great differences between one town and another with respect to the age and sex constitution of their several populations, these recorded rates require correction before they can be justly used for purposes of comparison. In Table A of the present Summary factors are given by the use of which this correction can be made with approximate accuracy for each town. Applying these factors we have the corrected rates, which are given in the fourth column of that table. In the fifth column the death-rate for all England and Wales has been taken as 1000, and the corrected rate in each town has been reduced to a figure comparable with that number taken as a standard. This column may be read as follows:—After making approximate correction for differences of age and sex constitution, the same number of lives that in the year 1897 gave 1000 deaths in England and Wales as a whole, gave 1185 deaths in the thirty-three great towns, 781 in Croydon, 874 in Brighton, 951 in Portsmouth, &c., &c., also 1501 in Manchester, 1535 in Liverpool, 1536 in Preston, and 1542 in Salford.

TABLE A.—RECORDED and CORRECTED DEATH-RATES per 1,000 Persons living in 33 Great Towns in 1897.

TOWNS, in the order of their Corrected Death-rates.	Standard Death-rate.*	Factor for Correction for Sex and Age Dis- tribution.†	Recorded Death-rate, 1897.	Corrected Death-rate, 1897.‡	Comparative Mortality Figure, 1897.§
Cols.	1.	2.	3.	4.	5.
England and Wales ...	19·15	1·0000	17·43	17·43	1,000
England and Wales, less the 33 Towns.	19·45	0·9845	16·52	16·26	933
33 Towns ...	17·71	1·0813	19·10	20·65	1,185
Croydon ...	18·37	1·0424	13·07	13·62	781
Brighton ...	18·94	1·0110	15·06	15·23	874
Portsmouth ...	18·73	1·0224	16·21	16·57	951
Cardiff ...	17·16	1·1159	14·94	16·67	956
West Ham ...	17·75	1·0788	15·66	16·89	969
Swansea ...	17·53	1·0924	15·82	17·28	991
Derby ...	17·36	1·1031	16·03	17·68	1,014
Bristol ...	18·33	1·0447	17·20	17·97	1,031
Norwich ...	19·99	0·9579	18·77	17·98	1,032
Halifax ...	17·20	1·1133	16·48	18·35	1,053
Plymouth ...	19·70	0·9720	19·04	18·51	1,062
Huddersfield ...	16·47	1·1627	16·40	19·07	1,094
Leicester ...	17·64	1·0855	17·66	19·17	1,100
London ...	17·97	1·0656	18·19	19·38	1,112
Hull ...	18·23	1·0504	18·56	19·50	1,119
Gateshead ...	17·83	1·0740	18·28	19·63	1,126
Bradford ...	16·73	1·1446	17·45	19·97	1,146
Birkenhead ...	17·42	1·0993	18·26	20·07	1,151
Nottingham ...	17·81	1·0752	18·78	20·19	1,158
Sunderland ...	18·25	1·0493	19·70	20·67	1,186
Newcastle ...	17·58	1·0892	19·09	20·79	1,193
Blackburn ...	17·05	1·1231	19·50	21·90	1,256
Oldham ...	16·72	1·1453	19·18	21·97	1,260
Leeds ...	17·28	1·1082	19·88	22·03	1,264
Burnley ...	16·67	1·1487	19·51	22·41	1,286
Wolverhampton ...	18·30	1·0464	22·05	23·07	1,324
Sheffield ...	17·22	1·1120	21·20	23·57	1,352
Birmingham ...	17·33	1·1050	21·59	23·86	1,369
Bolton ...	16·90	1·1331	21·97	24·89	1,428
Manchester ...	16·90	1·1331	23·10	26·17	1,501
Liverpool ...	17·44	1·0980	24·37	26·76	1,535
Preston ...	17·42	1·0993	24·36	26·78	1,536
Salford ...	17·03	1·1244	23·91	26·88	1,542

* The Standard Death-rate signifies the death-rate at all ages calculated on the hypothesis that the rates at each of twelve age-periods in each town were the same as in England and Wales during the ten years 1881-90, the Death-rate at all ages in England and Wales during that period having been 19·15 per 1,000.

† The Factor for Correction is the figure by which the Recorded Death-rate should be multiplied in order to correct for variations of sex and age distribution.

‡ The Corrected Death-rate is the Recorded Death-rate multiplied by the Factor for Correction.
§ The Comparative Mortality Figure represents the Corrected Death-rate in each town compared with the Recorded Death-rate at all ages in England and Wales in 1897, taken as 1,000.

Particulars of the mortality during 1897 in each of the thirty-three great English towns are given in Tables 1 to 4.

Infantile mortality.—The 209,412 deaths at all ages included 59,591 deaths of infants during their first year of life. Infantile mortality, therefore, by which term is meant the proportion of deaths under one year to births registered, was equal to 177 per 1000 in the thirty-three great towns, and was 10 per 1000 above the average rate in the ten preceding years. In the year 1897 the lowest rates in the thirty-three towns were 131 in Huddersfield, 135 in Croydon, 140 in Swansea and in Halifax, and 144 in Brighton; the highest rates were 217 in Wolverhampton, 219 in Salford, 220 in Burnley, and 262 in Preston.

Among zymotic diseases, the mortality from diphtheria and from diarrhoea showed an excess in the year 1897 as compared with the mean rate in the preceding decennium; whilst the mortality from small-pox, measles, scarlet fever, whooping-cough, and "fever" was in each case below the average.

There were in the thirty-three towns 18 deaths from *small-pox* last year, as compared with 732, 450, 120, and 25 respectively in the four preceding years. Of these 18 deaths, 16 occurred in London or in the Metropolitan Asylum Hospitals outside London, 1 in Bristol, and 1 in Hull.

The mortality attributed to *measles* was equal to a rate of 0.55 per 1000, against an average rate of 0.62 in the ten preceding years. The lowest rates were 0.03 in Norwich, 0.07 in Leicester, and 0.11 in Hull; the highest rates were 1.33 in Burnley, 1.78 in Bolton, 2.22 in Salford, and 2.77 in Preston.

Scarlet fever caused a mortality equal to 0.18 per 1000, as compared with a decennial average of 0.27. The rates in the several towns ranged from 0.04 in Preston and in Bradford, and 0.05 in Plymouth, in Burnley, and in Blackburn, to 0.29 in Salford, 0.32 in Huddersfield, 0.33 in Liverpool, and, 0.35 in Leicester.

The mortality ascribed to *diphtheria* was equal to a rate of 0.31 per 1000, against a decennial average of 0.29. The rate in 1897 was below that recorded in any of the four preceding years. Excluding London, where the rate was equal to 0.51 per 1000, the rate in the great English towns did not exceed 0.18 per 1000; it ranged from 0.03 in Preston and in Sunderland, 0.05 in Bolton, and 0.06 in Blackburn, to 0.37 in West Ham, 0.53 in Cardiff, 0.57 in Burnley, and 0.62 in Wolverhampton.

Whooping-cough gave rise to a death-rate of 0.41 per 1000 during the year, or 0.14 below the average rate. The lowest rates were 0.09 in Halifax, 0.19 in Bradford, and 0.20 in Cardiff; the highest rates being 0.56 in Liverpool and in Manchester, 0.60 in Burnley, and 0.63 in Blackburn.

Continued fevers, mainly enteric, gave rise to a mortality equal to a rate of 0.18 per 1000, or 0.02 below the average. The lowest rates were 0.07 in Croydon and in Swansea, 0.08 in Plymouth, and 0.12 in Cardiff; the highest being 0.29 in Norwich and in Blackburn, 0.30 in Preston, and 0.31 in Salford and in Sheffield.

Diarrhoea caused a mortality equal to a rate of 1.24 per 1000; this rate was 0.40 above the decennial average, and was higher than in any of the ten preceding years. The lowest rates were 0.21 in Swansea, 0.32 in Halifax, and 0.35 in Huddersfield; the highest were 1.93 in Liverpool, 2.00 in Birmingham and in Salford, 2.11 in Wolverhampton, and 2.23 in Preston and in Hull.

The highest aggregate rates from the principal zymotic diseases were 4.02 in Bolton, 4.22 in Wolverhampton, 5.50 in Salford, and 5.63 in Preston.

Uncertified Causes of Death.—Of the 209,412 deaths registered during the year, 2727, or 1.3 per cent., were not certified. In London the proportion did not exceed 0.6 per cent., whilst it averaged 1.7 in the thirty-two other great

towns. The causes of all the deaths in Croydon and in Derby during the year 1897 were certified; among the other great towns the lowest proportions of uncertified deaths were 0·2 in Bolton and in Oldham, 0·3 in Plymouth, and 0·4 in Portsmouth; the highest proportions were 2·8 in Huddersfield and in Sheffield, 3·2 in Birmingham and in Preston, and 3·4 in Liverpool.

LONDON.

MARRIAGES.

The marriages in London during the year 1897 numbered 41,223, and the proportion of persons married was 18·5 per 1000 of the population; this is the highest rate recorded in any year since 1878.

BIRTHS.

In the course of last year 133,618 births were registered, giving a rate of 30·0 per 1000 of the population. This is the lowest London birth-rate on record. The natural increment of the population, by excess of births over deaths, was 52,675, the average increment in the ten preceding years having been 48,003 per annum.

DEATHS.

The deaths in the year 1897 numbered 80,943, and corresponded to a rate of 18·2 per 1000 of the population, the average death-rate in the previous ten years having been 19·9. With the exception of the rate in the year 1894, the rate in 1897 was the lowest hitherto recorded.

The 80,943 registered deaths include 1654 of Londoners which took place in Metropolitan Institutions outside the limits of Registration London, and also 1972 deaths of strangers who had been admitted into London Hospitals and Infirmarys from districts outside these boundaries. By excluding the deaths of persons ascertained to have been strangers, the death-rate of London is reduced to 17·7 per 1000.

CORRECTED MORTALITY OF LONDON SANITARY AREAS.

The rates of mortality in the sanitary areas of the Metropolis, when calculated on the deaths locally registered, convey an erroneous idea of the relative healthiness of these areas.

The presence of hospitals, workhouses, and other large public institutions in certain parts of London unduly raises the recorded death-rate of the areas in which they are situated, whilst the mortality of other areas, from which patients have migrated to those institutions, is correspondingly lowered. Until the deaths occurring in public institutions have been distributed to the sanitary areas from which the patients originally came, no reliable rates of mortality for these areas can be calculated.

In Table 21 the deaths in 1897 are shown, after due correction for institution mortality, and in Table 22 the deaths have been reduced to annual rates per 1000 of the several estimated populations. The rates for Metropolitan sanitary areas were published for the first time in the Annual Summary for 1896, the establishment of a quinquennial census for London having rendered it possible to form estimates of population from year to year which may perhaps be regarded as sufficiently accurate for this purpose. Some of the London sanitary areas afford striking examples of the necessity for such distribution. This is shown by the following table, which gives the *registered* death-rates from certain diseases side by side with the *corrected* rates in each of the sanitary areas.

TABLE B.—DEATH-RATES during 1897 in LONDON* and its SANITARY AREAS from ALL CAUSES, and from certain diseases (1) before Distribution, and (2) after Distribution, of Deaths in Public Institutions.

SANITARY AREAS.	DEATH-RATES PER 1000 LIVING.							
	All Causes.		Scarlet Fever.		Diphtheria.		Phthisis.	
	Before Distribution.	After Distribution.	Before Distribution.	After Distribution.	Before Distribution.	After Distribution.	Before Distribution.	After Distribution.
REGISTRATION LONDON ..	18'2	17'7	0'18	0'17	0'51	0'50	1'77	1'71
West.								
Paddington	15'4	14'4	0'02	0'17	0'28	0'51	1'10	1'13
Kensington	17'7	15'7	0'02	0'18	0'19	0'47	2'47	1'44
Hammersmith	14'9	16'7	0'02	0'10	0'23	0'28	0'97	1'38
Fulham	18'7	17'0	0'74	0'22	1'29	0'53	1'64	1'54
Chelsea	18'4	17'8	0'05	0'18	0'19	0'56	2'40	1'81
St. George, Hanover Square ..	19'7	13'2	—	0'09	0'26	0'21	2'23	1'16
St. Margaret & St. John, Wstmnstr.	16'0	19'0	0'08	0'25	0'25	0'43	1'49	2'70
St. James, Westminster	13'7	17'5	—	0'36	—	0'13	1'47	2'27
North.								
St. Marylebone	15'8	18'3	0'01	0'06	0'16	0'33	1'07	1'75
Hampstead	15'8	11'8	1'05	0'08	2'28	0'22	1'36	0'74
St. Pancras	19'2	18'7	0'01	0'10	0'26	0'47	2'29	2'01
Islington	15'8	15'8	0'07	0'18	0'23	0'38	1'70	1'44
Stoke Newington	12'7	14'3	0'03	0'06	0'44	0'56	1'06	1'17
Hackney	17'7	16'5	0'35	0'17	1'24	0'62	1'49	1'43
Central.								
St. Giles	14'4	18'4	—	0'19	0'03	0'19	2'79	2'99
St. Martin-in-the-Fields	23'4	16'3	—	0'16	0'79	0'24	2'05	2'60
Strand	23'4	21'3	0'04	0'13	0'13	0'21	2'68	3'36
Holborn	26'4	23'1	—	0'13	0'86	0'53	2'37	2'76
Clerkenwell	14'6	22'1	0'05	0'21	0'26	0'73	1'30	2'35
St. Luke	18'9	25'7	—	0'32	0'15	0'51	2'48	3'11
City of London	35'0	21'3	0'07	0'27	0'73	0'33	2'16	1'89
East.								
Shoreditch	21'9	21'6	0'05	0'24	0'33	0'64	2'02	2'03
Bethnal Green	19'8	21'4	0'09	0'19	0'30	0'65	2'17	1'98
Whitechapel	29'7	20'4	0'08	0'19	0'64	0'43	2'72	2'52
St. George-in-the-East	21'9	26'4	0'08	0'29	0'25	0'59	2'32	2'76
Limehouse	22'3	25'1	0'07	0'21	0'38	0'50	1'63	2'55
Mile End Old Town	16'3	18'7	0'04	0'11	0'33	0'56	1'28	1'40
Poplar	20'4	19'8	0'09	0'17	0'48	0'71	2'05	1'88
South.								
St. Saviour	17'1	24'6	0'08	0'28	0'24	0'48	1'57	3'22
St. Geo.-the-Martyr, Southwark	20'2	23'7	0'05	0'23	0'22	0'46	1'58	2'84
Newington	15'6	21'2	0'04	0'27	0'19	0'53	1'33	2'21
St. Olave	70'6	22'1	0'09	0'17	1'14	0'17	4'89	2'88
Bermondsey	16'5	22'1	0'06	0'40	0'30	0'73	1'05	2'04
Rotherhithe	22'2	18'9	0'17	0'54	0'35	0'52	3'33	1'58
Lambeth	18'3	17'5	0'18	0'14	0'66	0'48	1'58	1'67
Battersea	15'6	16'2	0'04	0'28	0'31	0'63	1'47	1'49
Wandsworth	12'7	13'4	0'42	0'15	1'26	0'57	1'00	1'14
Camberwell	17'6	16'6	0'05	0'12	0'28	0'66	2'05	1'50
Greenwich	17'7	17'2	0'46	0'18	0'83	0'39	1'52	1'48
Lee	16'4	13'2	1'71	0'08	2'35	0'43	1'15	1'10
Lewisham (excluding Penge) ..	13'0	12'8	0'17	0'10	0'38	0'42	0'95	0'94
Woolwich	13'8	17'8	0'07	0'19	0'46	0'80	1'16	1'91
Plumstead	14'6	13'7	0'02	0'10	0'23	0'39	1'79	1'56

* See note † to Table 1, page xix.

Thus in St. Olave, for instance, in which sanitary area Guy's Hospital is situated, the registered deaths in 1897 numbered 808, and were equal to a rate of 70·6 per 1000 of the population; but after distribution of the deaths occurring in public institutions only 253 deaths remained as properly belonging to St. Olave sanitary area. In this case the *corrected* rate is 22·1 per 1000, or less than one-third of the uncorrected rate.

Again, the sanitary area comprising the City of London contains, among other public institutions, St. Bartholomew's Hospital and the City Workhouse. The deaths registered in the City during 1897 numbered 1054; but of these 653 occurred in public institutions, most of which were of persons belonging to other sanitary areas, and several deaths of residents of the City of London occurred in institutions outside its boundaries. After distribution of these deaths the number belonging to the City of London is found to be 642. The uncorrected death-rate of the City of London in 1897 therefore stood at 35·0 per 1000, whilst the corrected rate did not exceed 21·3.

On the other hand, in the sanitary area of Bermondsey only 1411 deaths were registered during the year 1897, but when the deaths of Bermondsey residents which took place in public institutions outside the boundaries of that area are taken into account, the death total is raised from 1411 to 1883, and the death-rate from 16·5 per 1000 of the population to 22·1. In like manner the death-rate of St. George-in-the-East is raised from 21·9 to 26·4; that of St. Saviour from 17·1 to 24·6; that of St. George Southwark from 20·2 to 23·7; and that of Newington from 15·6 to 21·2.

Infantile Mortality.—The total deaths at all ages include those of 21,273 infants under one year of age, corresponding to a rate of 159 per 1000 births, as compared with an average rate of 155 in the ten years immediately preceding.

After distribution of the deaths occurring in public institutions the incidence of infantile mortality upon the various sanitary areas of the Metropolis was as follows:—the lowest rates were 116 in Plumstead, 121 in Stoke Newington, 127 in Hampstead, 129 in Lewisham, and 130 in City of London; the highest rates were 189 in St. George Southwark, 190 in Bermondsey, 193 in Limehouse, 195 in St. Saviour Southwark, and 197 in St. George-in-the-East.

Causes of Death.—Table C on the opposite page shows, in a summary form, the number of lives saved and the number lost in the year 1897, as compared with the number in the preceding decennium, under each of the more important headings in the list of causes.

The net gain in life saved during 1897 is represented by 7651 lives. In other words, had the average death-rate in 1887–96 continued throughout the year under present notice, 7651 lives would have been sacrificed in addition to those which have been actually lost by death. In the year 1897 there was, as compared with the decennial average, an excess of 222 deaths from diphtheria, 1156 from diarrhoeal diseases, 475 from cancer, 282 from premature birth, 135 from urinary diseases, and 134 from accident. Under each of the other headings in the table the mortality in 1897 was below the average. This was notably the case in regard to measles, whooping-cough, phthisis, and diseases of the nervous and of the respiratory system, the deaths referred to the last-mentioned group of diseases being 4910 below the annual average.

TABLE C.—LONDON.—DIMINUTION OR EXCESS OF DEATHS IN 1897, compared with the Average Annual Deaths in 1887-96, corrected for increase of Population.

CAUSE OF DEATH.	Diminution in 1897.	Excess in 1897.
Small-pox	29	—
Measles	942	—
Scarlet Fever	311	—
Typhus	9	—
Influenza	398	—
Whooping-cough	794	—
Diphtheria	—	222
Simple Fever	21	—
Enteric Fever	40	—
Diarrhoeal Diseases... ..	—	1156
Cancer	—	475
Phthisis and other Tubercular Diseases	980	—
Premature Birth	—	282
Diseases of Nervous System	1483	—
Diseases of Circulatory System	150	—
Diseases of Respiratory System	4910	—
Diseases of Urinary System	—	135
Childbirth and Puerperal Fever	79	—
Accident	—	134
Homicide	7	—
Suicide	—	—
All other Causes	—	98
	10,153	2502
Balance of Diminution or Excess	7651	—

Influenza.—The deaths referred to influenza during 1897 numbered 671, against 727, 2117, and 491 in the three preceding years. Although the deaths from this disease in 1897 exceeded those recorded in 1896, they were fewer than in any other year since 1890, the first year of the epidemic in London, and were less than half the average annual number in the seven preceding years.

Small-pox caused 16 deaths during 1897, against 206, 88, 55, and 9 in the four preceding years. Of the 16 deaths registered during the year under notice, 5 were those of vaccinated persons, and 3 those of unvaccinated persons; while with respect to the remaining 8 no statement as to vaccination was made in the medical certificates. Of the total deaths, 5 belonged to Camberwell, 2 to Greenwich, 2 to Strand, and 1 each to St. Pancras, Islington, St. Martin-in-the-Fields, Clerkenwell, City of London, Shoreditch, and St. George Southwark sanitary areas.

Measles was the certified cause of 1929 deaths during the year, which were equal to a rate of 0·43 per 1000, as compared with 0·64, the decennial average rate. Among the Metropolitan sanitary areas the lowest rates were 0·02 in Paddington, 0·05 in Hammersmith, in Woolwich, and in Plumstead, and 0·06 in St. Marylebone; the highest rates were 1·08 in Limehouse, 1·11 in St. George Southwark, 1·29 in St. Saviour Southwark, and 1·42 in St. George-in-the-East.

Scarlet Fever caused 780 deaths, which were equal to 0·18 per 1000 of the population in the year under present notice, as compared with 0·25, the average rate in the ten years immediately preceding. Of these 780 deaths, 592, or 76 per cent., occurred in public institutions. Among the various Metropolitan sanitary areas the lowest scarlet fever death-rates, after distribution of institution deaths, were 0·06 per 1000 in St. Marylebone and in Stoke Newington, 0·08 in Hampstead and in Lee, and 0·09 in St. George Hanover Square; the highest death-rates from this disease were 0·32 in St. Luke 0·36 in St. James Westminster, 0·40 in Bermondsey, and 0·54 in Rotherhithe.

Table B (p. vii) shows that correction for deaths occurring in hospitals considerably alters the scarlet fever mortality of many of the Metropolitan sanitary areas. The scarlet fever death-rate of Lee, for example, which district suffered but slightly from scarlet fever last year, would have been increased more than twenty-fold if the hospital deaths had not been assigned to the areas to which they actually belonged; and the scarlet fever rate of Hampstead would have been increased more than thirteen-fold under the same circumstances. Reference to the table shows that distribution has had the effect of raising the scarlet fever mortality of most of the other sanitary areas of London.

Diphtheria was the assigned cause of 2261 deaths in the course of the year 1897. These deaths were equal to a rate of 0·51 per 1000, against rates of 0·62, 0·54, and 0·60 per 1000 in the three preceding years.

The London death-rate from diphtheria in 1897 exceeded the average rate in the ten years 1887-96, which had been 0·45 per 1000. The deaths from diphtheria and croup together numbered 2333, and were 64 below the average. The local mortality from diphtheria is very seriously disturbed by the existence of hospitals in certain of the areas. In Hampstead, for example, 176 deaths from diphtheria were registered in 1897; most of these occurred in the Metropolitan Asylums Board Hospital, to which the patients had been admitted from other districts, and, after distribution of institution deaths, only 17 remained which were those of persons belonging to Hampstead sanitary area. Similarly, in Fulham sanitary area 155 deaths from diphtheria were registered, most of these being hospital cases imported from outside districts, only 63 properly belonging to Fulham. Hackney, St. Martin-in-the-Fields, City of London, Holborn, St. Olave Southwark, Wandsworth, Greenwich, and Lee are also instances of sanitary areas whose registered death-rates from diphtheria are enormously increased by the presence of hospitals. On the other hand, Kensington, Chelsea, St. Marylebone, St. Giles, Clerkenwell, St. Luke, Bethnal Green, St. George-in-the-East, St. George Southwark, Newington, Bermondsey, Battersea, and Camberwell, may be mentioned as examples of the opposite kind, where the effect of distribution has been to more than double the diphtheria death-rates of those areas by the inclusion of deaths occurring in hospitals outside their own boundaries.

Among London sanitary areas the lowest death-rates from diphtheria, after distribution of institution deaths, were 0·13 in St. James Westminster, 0·17 in St. Olave Southwark, 0·19 in St. Giles, and 0·21 in Strand; the highest rates were 0·65 in Bethnal Green, 0·66 in Camberwell, 0·71 in Poplar, 0·73 in Clerkenwell and in Bermondsey, and 0·80 in Woolwich.

The following table shows the death-rates from diphtheria in the London sanitary areas severally during each of the past ten years.

TABLE D.—DEATH-RATES from DIPHTHERIA, per 1000 LIVING, in each of the METROPOLITAN SANITARY AREAS during the TEN YEARS 1888-97, after distribution of DEATHS in PUBLIC INSTITUTIONS.

SANITARY AREAS.	Year.									
	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.
REGISTRATION LONDON.	0'31	0'38	0'33	0'32	0'44	0'75	0'61	0'52	0'59	0'50
West.										
Paddington	0'66	0'36	0'34	0'20	0'23	0'58	0'76	0'38	0'51	0'51
Kensington	0'55	0'67	0'20	0'17	0'20	0'49	0'46	0'53	0'40	0'47
Hammersmith	0'42	0'49	0'51	0'75	0'74	0'53	0'49	0'43	0'49	0'28
Fulham	0'13	0'15	0'25	0'21	0'32	0'63	0'99	0'70	0'66	0'53
Chelsea	0'15	0'25	0'58	0'17	0'41	0'54	0'54	0'59	1'17	0'56
St. George, Hanover Square.	0'56	0'37	0'16	0'26	0'33	0'43	0'24	0'30	0'30	0'21
St. Margaret and St. John, Westminster.	0'65	0'50	0'16	0'20	0'80	0'26	0'48	0'39	0'37	0'43
St. James, Westminster	0'19	0'08	0'12	0'28	0'25	0'58	0'63	0'17	0'09	0'13
North.										
St. Marylebone	0'16	0'23	0'19	0'18	0'34	0'66	0'51	0'25	0'52	0'33
Hampstead	0'26	0'13	0'31	0'19	0'39	0'53	0'27	0'19	0'39	0'22
St. Pancras	0'31	0'26	0'55	0'30	0'45	0'85	0'50	0'55	0'40	0'47
Islington	0'16	0'20	0'25	0'50	0'47	0'61	0'67	0'44	0'74	0'38
Stoke Newington	0'35	0'44	0'29	0'34	0'56	0'87	0'15	0'15	0'56	0'56
Hackney							0'59	0'39	0'47	0'62
Central.										
St. Giles	0'27	0'42	0'24	0'30	0'53	0'56	0'36	0'34	0'18	0'19
St. Martin-in-the-Fields	0'19	0'13	0'07	0'28	0'84	0'53	0'44	0'53	0'23	0'24
Strand	0'11	0'30	0'15	0'20	0'32	0'90	0'37	0'54	0'12	0'21
Holborn	0'14	0'49	0'52	0'27	0'52	0'68	0'63	0'22	0'38	0'53
Clerkenwell	0'39	0'36	0'28	0'42	0'42	1'15	0'51	0'51	0'62	0'73
St. Luke	0'23	0'30	0'37	0'28	0'33	1'10	0'36	0'48	0'62	0'51
City of London	0'27	0'30	0'28	0'34	0'66	0'31	0'18	0'24	0'34	0'33
East.										
Shoreditch	0'26	0'56	0'46	0'53	0'36	1'11	0'61	0'47	0'60	0'64
Bethnal Green	0'41	0'79	0'88	0'47	0'91	1'06	1'03	0'78	0'57	0'65
Whitechapel	0'33	0'46	0'68	0'73	0'78	0'80	0'60	0'75	0'60	0'43
St. George-in-the-East ..	0'33	0'94	0'65	0'42	0'72	1'34	1'09	1'06	0'62	0'59
Limehouse	0'43	0'82	0'48	0'28	0'44	1'06	0'88	0'78	0'83	0'50
Mile End Old Town ..	0'19	0'50	0'40	0'34	0'75	0'73	0'74	1'01	0'86	0'56
Poplar	0'26	0'39	0'42	0'33	0'47	1'00	0'64	0'90	0'61	0'71
South.										
St. Saviour	0'47	0'44	0'18	0'41	0'22	0'65	0'77	0'51	0'70	0'48
St. George-the-Martyr, Southwark.	0'39	0'34	0'23	0'30	0'44	0'75	0'82	0'28	0'65	0'46
Newington	0'16	0'48	0'27	0'38	0'33	0'79	0'51	0'43	0'58	0'53
St. Olave	0'32	0'08	0'31	0'40	0'24	0'57	0'25	0'34	0'76	0'17
Bermondsey	0'16	0'27	0'22	0'19	0'24	0'94	0'78	0'34	0'84	0'73
Rotherhithe	0'21	0'42	0'20	0'10	0'28	0'78	0'78	0'77	0'63	0'52
Lambeth	0'40	0'58	0'27	0'28	0'47	0'55	0'49	0'38	0'46	0'48
Battersea	0'20	0'23	0'27	0'46	0'35	1'07	0'73	0'57	0'49	0'63
Wandsworth	0'46	0'30	0'14	0'23	0'40	0'67	0'45	0'25	0'21	0'57
Camberwell	0'29	0'31	0'22	0'20	0'33	0'54	0'78	0'72	1'01	0'66
Greenwich	0'22	0'19	0'28	0'28	0'31	0'87	0'77	1'06	0'78	0'39
Lee*	0'14	0'14	0'14	0'08	0'16	0'54	0'56	0'29	0'43	0'43
Lewisham (ex. Penge) ..	0'47	0'07	0'21	0'11	0'27	0'69	0'38	0'17	0'88	0'42
Woolwich	0'08	0'15	0'12	0'05	0'10	0'20	0'34	0'34	0'74	0'80
Plumstead*	0'41	0'27	0'27	0'11	0'70	1'18	0'64	0'62	0'91	0'39

* The rates for Lee and Plumstead for all the years relate to those sanitary areas as constituted on 25th March 1894.

Whooping-cough was the assigned cause of 1842 deaths during 1897. The whooping-cough death-rate was equal to 0·41 per 1000, and with one exception was below the rate in any year since 1883. The mean rate in the ten years 1887–96 had been 0·59 per 1000. Among sanitary areas the lowest death-rates from this disease during 1897 were 0·11 in Kensington, 0·13 in Lee, 0·16 in St. George Hanover Square, and 0·19 in Woolwich; the highest rates were 0·67 in Newington, 0·68 in St. Luke, 0·70 in St. Olave Southwark, 0·73 in Bermondsey, and 0·74 in Clerkenwell.

Enteric fever was the registered cause of 557 deaths, *typhus* of 1, and *simple* or *ill-defined continued fever* of 8 deaths. Thus, to continued fevers (referred to in the aggregate as “fever”) 566 deaths were classed in the course of the year. These deaths were equal to a rate of 0·13 per 1000, which showed a slight further decline from the rates in recent years, and was slightly below the average rate (0·15) in the ten years 1887–96. Among sanitary areas the lowest enteric fever death-rates were 0·05 in Rotherhithe and in Plumstead, 0·06 in Hampstead, and 0·07 in Paddington, in Limehouse, and in Newington; the highest rates were 0·18 in Poplar, 0·21 in St. George-in-the-East and in Mile End Old Town, 0·29 in Stoke Newington, and 0·30 in City of London.

The following table shows the admissions into the Metropolitan Asylums Board Hospitals, the Highgate Small-pox Hospital, and the London Fever Hospital, together with the deaths therein, of small-pox, scarlet fever, diphtheria, and enteric fever patients during each of the ten years 1888–97:—

TABLE E.—LONDON.—ADMISSIONS and DEATHS at the METROPOLITAN ASYLUMS BOARD HOSPITALS, the HIGHGATE SMALL-POX HOSPITAL, and the LONDON FEVER HOSPITALS, of Persons suffering from SMALL-POX, SCARLET FEVER, DIPHTHERIA, and ENTERIC FEVER, 1888–1897.

Years.	Small-pox.		Scarlet Fever.		Diphtheria.		Enteric Fever.	
	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
1888	66	8	4881	514	111	50	461	73
1889	7	—	4837	370	740	278	311	42
1890	25	4	6991	521	965	317	518	95
1891	67	8	5601	360	1330	399	759	108
1892	366	38	13,686	850	2021	584	430	65
1893	2546	190	15,312	918	2853	866	544	110
1894	1226	108	11,892	725	3691	1041	538	96
1895	971	65	11,800	601	3688	824	661	119
1896	211	8	16,627	674	4580	956	600	96
1897	73	13	15,550	628	5726	993	664	124

Diarrhœa was returned as the cause of 4089 deaths, which were equal to a rate of 0·92 per 1000. This is the highest rate recorded in any year since 1887, and is considerably in excess of the average rate in the preceding ten years, namely, 0·67 per 1000. Among sanitary areas the death-rates in 1897 from diarrhœa ranged from 0·16 in St. Martin-in-the-Fields, 0·17 in City of London, 0·31 in St. George Hanover Square, and 0·36 in Hampstead, to 1·31 in St. Olave Southwark, 1·35 in Newington, 1·45 in Bermondsey, 1·55 in Shoreditch, and 1·81 in St. George Southwark.

Phthisis was the assigned cause of 7864 deaths in the year 1897, against an annual average of 8390 deaths in the ten years 1887–96. The phthisis death-rate in Registration London was equal to 1·71 per 1000, as compared with rates of 1·83 and 1·73 respectively in the two years immediately preceding. Some of the London sanitary areas strikingly show the necessity of distributing institution deaths from phthisis, in order to arrive at a fairly reliable measure of local mortality from that disease. Thus, for example, in Kensington, which area contains the Marylebone Infirmary and part of the Brompton Hospital for consumption, 422 deaths from phthisis were registered during the year under notice; but it was found, on examination of the entries relating to these 422 deaths, that nearly one-half of them were those of non-residents which had taken place in Kensington public institutions. After distribution of these deaths to districts from which the patients had been removed to hospital, the Kensington death-rate from phthisis was reduced from 2·47 per 1000 to 1·44 per 1000. St. Olave Southwark is another sanitary area which is similarly in point. This area contains Guy's Hospital, the deaths of outsiders occurring in which raised the registered phthisis death-rate of St. Olave by 2·01 per 1000 in excess of the true rate. On the other hand, St. Margaret Westminster, Clerkenwell, Limehouse, St. Saviour Southwark, St. George Southwark, Newington, and Bermondsey are examples of sanitary areas, the phthisis death-rates of which have been very considerably increased by the apportionment thereto of deaths from phthisis which had occurred in hospitals outside their own boundaries. After distribution of the phthisis deaths as above-mentioned, the death-rates from that disease in the Metropolitan sanitary areas ranged from 0·74 in Hampstead, 0·94 in Lewisham, 1·10 in Lee, and 1·13 in Paddington, to 2·88 in St. Olave Southwark, 2·99 in St. Giles, 3·11 in St. Luke, 3·22 in St. Saviour Southwark, and 3·36 in Strand.

The deaths in London attributed to *violence* numbered 3469 in the year under notice, as against 3344, the corrected average number in the preceding ten years. The deaths from *suicide* numbered 443, and corresponded with the average. The deaths from *homicide* numbered 66, and were 7 below the average. There was 1 *execution* during the year. Of the 2959 deaths from *accident*, 334 were caused by horses and vehicles in the streets, a higher number than in any other year on record. As mentioned in previous summaries, the deaths here returned as caused by vehicles and horses are probably far from representing the total mortality so resulting, many of these deaths being registered under indefinite headings such as “fractures,” &c.

The following table shows the numbers of deaths caused by the various descriptions of vehicles, those under the heading “Van, waggon, dray,” being considerably more numerous than in any preceding year.

TABLE F.—LONDON.—DEATHS caused by HORSES and VEHICLES in the STREETS,
1873-1897.

Year.			Description of Vehicle, &c.								TOTAL.
			Horse, &c.	Carriage.	Omnibus.	Tram-car.	Cab.	Cart.	Van, waggon, dray.	Others, and not described.	
1873	...	...	13	10	12	17	28	56	79	2	217
1874	...	...	28	11	17	14	33	36	67	5	211
1875	...	...	11	15	18	9	39	55	82	2	231
1876	...	...	13	4	17	12	24	56	84	7	217
1877	...	...	16	13	13	4	26	56	97	2	227
1878	...	...	17	12	14	10	34	63	84	3	237
1879	...	...	16	13	17	18	36	57	74	5	236
1880	...	...	12	11	20	17	39	43	76	2	220
1881	...	...	13	14	21	23	31	58	88	4	252
1882	...	...	12	15	19	23	37	60	100	5	271
1883	...	...	6	12	16	25	57	45	57	4	222
1884	...	..	12	11	33	18	57	51	74	9	265
1885	...	...	12	20	14	11	55	55	89	10	266
1886	...	...	10	7	21	9	39	49	111	5	251
1887	...	.	13	7	18	19	51	49	85	9	251
1888	...	.	5	15	25	9	41	47	91	4	237
1889	...	.	15	10	29	12	52	40	83	13	254
1890	...	..	3	11	22	18	43	44	109	20	270
1891	...	..	9	10	18	12	35	38	111	11	244
1892	...	...	17	15	26	11	44	47	101	8	269
1893	...	...	21	7	28	16	42	48	109	33	304
1894	...	...	17	10	24	13	35	46	86	24	255
1895	..	...	12	12	34	12	34	43*	117	27	291*
1896	...	...	18	15	30	17	51	33	117	19	300
1897	..	...	14	11	32	11	50	36	146	34	334

* Including one case in which a verdict of "Manslaughter" was returned.

Of the total deaths at all ages attributed to accident or negligence, 568 were those of infants under one year of age who had been suffocated in bed, the numbers so returned in the preceding year having been 626. Of the 66 deaths by homicide, as many as 24 were those of infants under one year of age.

Deaths in Workhouses, Hospitals, and Public Lunatic and Imbecile Asylums.—Of the 80,943 deaths registered in the year under notice, 23,553, or 29·1 per cent., took place in public institutions. The percentages in the several classes of institutions were as follows :—

- 14·3 per cent. in Workhouses and Workhouse Infirmaries.
 2·3 „ „ in Metropolitan Asylums Board Hospitals.
 10·4 „ „ in other Hospitals.
 2·1 „ „ in Public Lunatic and Imbecile Asylums.

Thus, in London, about one in every 7 deaths occurred in a Workhouse or Workhouse Infirmary, one in 44 in a Metropolitan Asylums Board Hospital, one in 10 in some other Hospital, and one in 48 in a Public Lunatic or Imbecile Asylum.

TABLE G.—LONDON.—DEATHS in PUBLIC INSTITUTIONS and PROPORTION of PAUPERISM, 1888-97.

	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.
Deaths in Public Institutions ..	18,853	18,869	21,881	23,052	22,260	24,598	22,117	23,282	23,178	23,553
Metropolitan Asylums Board Hospitals (in and out of London).	683	729	1,019	973	1,650	2,163	2,066	1,669	1,839	1,856
Other Hospitals	7,093	7,054	7,717	8,008	7,686	8,794	7,903	8,182	8,468	8,419
Lunatic and Imbecile Asylums.*	1,479	1,583	1,882	1,598	1,686	1,621	1,737	1,776	1,688	1,667
Workhouses and Workhouse Infirmaries.†	9,603	9,503	11,263	12,473	11,238	12,020	10,411	11,655	11,183	11,611
Proportion of persons in receipt of Poor Law Relief per 1000 population. { In-door	14·1	14·0	13·7	13·5	13·7	14·2	14·5	14·8	14·5	14·5
{ Out-door	10·0	9·0	8·5	8·0	7·8	8·2	8·3	9·8	8·5	8·3

* Including the City of London, London County, and Metropolitan Lunatic and Imbecile Asylums situated outside Registration London.

† Including the Islington and the Strand Union Workhouses at Edmonton, and the Holborn Union Workhouse at Mitcham.

Uncertified Causes of Death.—Of the 80,943 deaths registered in London during the year, 479, or 0·6 per cent., were uncertified, corresponding with the proportion in 1896.

GREATER LONDON.—The estimated population of Greater London, which is co-extensive with the Metropolitan and City Police Districts, was 6,291,677 in the middle of the year 1897, including 4,463,169 in Inner or Registration London, and 1,828,508 in the Outer Ring. The mortality among the inhabitants of the entire area was at the rate of 16·7 per 1000, as compared with 16·4, 18·3, and 17·0 in the three preceding years. In Inner or Registration London, the mortality was at the rate of 18·2 per 1000, while in the Outer Ring it did

not exceed 13·2. Infantile mortality in Greater London was at the rate of 155 per 1000 births, as compared with 138, 159, and 155 in the three preceding years. The proportion in Inner London was 159, and in the Outer Ring 145, per 1000 births.

The Sixty-seven other Large Towns.

In the middle of the year 1897 the 67 English and Welsh towns included in Table 5 contained a population estimated at 3,812,631. The births registered in these towns in the course of the year numbered 114,870, and were in the proportion of 30·1 per 100 of the population, against 31·1 and 30·1 in the two preceding years. The deaths registered in the course of the year were 65,628 in number, and corresponded to a rate of 17·2 per 1000 persons living, against 18·7 and 17·3 in the two preceding years.

The death-rates in the several towns, calculated without reference either to sex or to age, varied considerably. They ranged from 8·2 in Eastbourne, 9·3 in Hornsey, 10·1 in Bournemouth, and 11·2 in Walthamstow, to 22·1 in Ashton-under-Lyne, 22·2 in Stockport, 22·4 in Aberdare, 24·5 in Merthyr Tydfil, and 25·6 in Longton.

Particulars of the mortality during 1897 in the 67 towns here referred to are given in Tables 5 and 6.

Infantile mortality.—The 65,628 deaths at all ages registered in the 67 towns included 19,367 of children under one year of age. Infantile mortality, or the proportion of deaths under one year of age to registered births, was therefore equal to 169 per 1000. The rates ranged from 102 in Hornsey, 111 in Eastbourne, 119 in Bournemouth and in Hastings, and 122 in Gloucester, to 209 in Merthyr Tydfil, 212 in Grimsby, 213 in Aberdare, 215 in Stockport, 228 in Ashton-under-Lyne, and 254 in Longton.

Small-pox caused only 1 death in these 67 towns during the year under notice; this fatal case was registered in Rotherham.

The death-rate from *measles* in these towns averaged 0·43 per 1000, the highest rates being 1·09 in St. Helens, 1·15 in Rhondda, 1·21 in Gloucester, 1·26 in Ashton-under-Lyne, 1·48 in Merthyr Tydfil, 1·51 in Macclesfield, and 1·73 in Aberdare.

The death-rate from *scarlet fever* averaged 0·15 per 1000, the highest rates in the several towns being 0·31 in Gloucester, 0·33 in West Bromwich, 0·37 in Walsall, 0·52 in St. Helens, 0·56 in Barnsley, and 0·68 in Northampton.

Diphtheria caused a death-rate averaging 0·24 per 1000, the highest rates being 0·62 in Rhondda and in Merthyr Tydfil, 0·63 in Great Yarmouth, 0·64 in Willesden, 0·76 in Worcester, 0·82 in Aberdare, 0·87 in Gloucester, and 2·62 in Longton.

The death-rate from *whooping-cough* averaged 0·38 per 1000, the highest rates being 0·74 in Rotherham, 0·75 in Middlesbrough, 0·78 in Southampton, 0·89 in Hanley, 0·96 in Northampton, and 0·98 in West Hartlepool.

The death-rate from "*fever*" averaged 0·16 during the year 1897. The highest "*fever*" rates were 0·35 in Great Yarmouth, 0·37 in St. Helens, 0·38 in Rotherham, 0·40 in Bootle and in Ashton-under-Lyne, and 0·45 in Exeter.

The death-rate ascribed to *diarrhœa* averaged 1·05 per 1000. The highest rates were 2·01 in Grimsby, 2·22 in Stockport, 2·24 in Walsall, 2·25 in Bootle, 2·28 in Aston Manor, and 2·58 in Barnsley.

The death-rates from the *principal zymotic diseases* in the aggregate averaged 2·41 in the 67 towns, and ranged from 0·78 in Hastings, 0·86 in Eastbourne, 0·87 in Cambridge, 0·93 in Bournemouth, and 1·01 in Darlington, to 4·10 in Stockport, 4·13 in Aberdare, 4·20 in Aston Manor and in Ashton-under-Lyne, 4·33 in St. Helens, and 5·35 in Longton.

Edinburgh, Glasgow, and Dublin.

In Edinburgh the death-rate in 1897 was equal to 21·3 per 1000, against 18·2 in London. In Glasgow the rate was 22·0 per 1000, and in Dublin it was 29·0. *Measles* caused a death-rate of 1·1 in Edinburgh and of 1·4 in Dublin; and *whooping-cough* a rate of 1·2 in Glasgow and of 1·1 in Dublin.

Colonial and Foreign Cities.

From Weekly and other Returns with which the Registrar-General is favoured by the Authorities of thirty-five of the principal Colonial and Foreign cities, with an estimated aggregate population of upwards of twenty-three millions, it is found that the deaths last year in these cities collectively were equal to a rate of 22·2 per 1000 living.

In thirty European and American cities, with an aggregate population of more than twenty and a half millions, the rate was 19·8 per 1000. Among these thirty cities the lowest rates were 13·7 in Cincinnati, 15·8 in Amsterdam and in The Hague, 15·9 in St. Louis, 16·3 in Christiania, 16·6 in Brussels, and 16·7 in Stockholm; among the other cities the rates ranged upwards to 23·8 in Prague, 24·3 in Munich, 24·5 in Breslau and in New Orleans, 25·6 in Trieste, 28·7 in Moscow, and 29·0 in St. Petersburg. In Paris the rate was 18·6, in Berlin 17·7, and in Vienna 20·9, against 18·2 in London. *Small-pox* caused 119 deaths in St. Petersburg, 32 in Moscow, 24 in New York, 12 in Paris, 11 in Trieste, and 8 in Berlin. *Measles* was proportionally most fatal in St. Petersburg, Moscow, and Vienna; *scarlet fever* in St. Petersburg, Moscow, and Prague; *diphtheria* in St. Petersburg, Moscow, Munich, Vienna, Trieste, and in most of the American cities from which returns are received; "*fever*" in St. Petersburg, Moscow, Prague, Rome, Philadelphia, and New Orleans; and *diarrhœal diseases* (including *cholera*) in St. Petersburg, Moscow, Breslau, and Munich.

Among the three Indian cities the general death-rate was equal to 32·3 in Calcutta, 35·5 in Madras, and 57·5 in Bombay. *Small-pox* caused 108 deaths in Madras, 82 in Calcutta, and 58 in Bombay; *measles* caused 410 deaths in Madras, and 348 in Bombay. Of the 18,395 deaths referred to "*fever*" in Bombay, 10,146 were attributed to "bubonic" fever. The mortality from *diarrhœal diseases* (including *cholera*) was excessive in each of the three Indian cities.

In Cairo and Alexandria the death-rates were respectively 32·4 and 31·8 per 1000, these high rates being mainly attributable to excessive mortality from *diarrhœal diseases*. *Small-pox* caused 111 deaths in Cairo and 67 in Alexandria.

TABLE 1.—33 Towns.—Population; Births, Deaths, and Meteorology, in the 52 Weeks of 1897.

CITIES AND BOROUGHES.	POPULATION BOUNDARY to the middle of 1897.*	Persons to an Acre.	BIRTHS.		DEATHS.		The DEATHS registered in the 52 Weeks include										MEAN TEMPERATURE. (Inches).	RAIN- FALL (Inches).	CITIES AND BOROUGHES.		
			3.	4.	Deaths of		7.	8.	9.	Deaths from						Inquest Cases.				Deaths in Public Institutions.	Unrecorded Causes of Death.
					Infants under 1 Year of Age.	Persons under 15 Years and over.				Infantile Zymotic Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping- cough.							Fever.	Diarrhoea.	Violence.
Colts.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	Colts.
33 TOWNS.	10,992,524	35.5	3367.0	2094.12	5959.1	4636.3	3147.9	18	6049	1967	3417	4453	1958	13617	7837	15706	42954	2727	48.3	27.62	.. 33 TOWNS.
LONDON†	4,463,169	59.8	13618	80943	21273	19138	11525	16	1929	780	2281	1842	593	4104	3469	7522	25553	479	50.3	22.13	LONDON†
WEST HAM.	273,682	157.1	877.9	427.3	1509	723	714	—	140	30	101	99	48	286	151	261	453	—	49.5	24.73	WEST HAM.
CROYDON.	121,171	13.4	301.5	157.9	407	509	173	—	17	12	8	31	9	96	55	122	276	—	—	—	CROYDON.
BRIGHTON.	121,401	48.0	2886	1823	4239	589	186	—	35	45	28	64	43	281	100	297	439	14	50.8	24.73	BRIGHTON.
PORTSMOUTH.	182,585	38.1	4897	2951	824	885	462	—	35	11	12	25	22	110	53	119	383	13	50.2	28.04	PORTSMOUTH.
PLYMOUTH.	97,658	42.6	2773	1855	514	548	213	—	49	5	13	53	8	85	41	111	213	6	48.4	28.04	PLYMOUTH.
BRISTOL.	232,242	49.7	6430	3864	1194	1194	425	—	75	18	35	116	47	151	147	359	816	37	48.4	34.56	BRISTOL.
CARDIFF.	170,063	28.1	5239	2534	796	430	372	—	17	17	90	34	21	135	33	186	303	22	—	—	CARDIFF.
SWANSEA.	100,369	19.7	2839	1583	412	376	136	—	45	10	11	42	7	21	35	33	186	303	—	—	SWANSEA.
WOLVERHAMPTON.	87,287	24.8	3054	1919	662	353	367	—	46	21	54	38	24	184	63	124	258	12	46.9	23.78	WOLVERHAMPTON.
BIRMINGHAM.	506,772	39.8	16803	10689	3602	2684	1958	—	398	93	147	221	92	1007	386	470	1785	346	46.9	23.78	BIRMINGHAM.
NORWICH.	110,154	14.6	3354	2062	651	658	243	—	14	11	70	82	32	154	128	270	430	30	48.5	22.07	NORWICH.
LEICESTER.	203,599	23.7	6206	3586	1271	754	637	—	48	36	21	73	46	388	156	256	644	85	47.8	23.33	LEICESTER.
NOTTINGHAM.	222,934	21.2	6717	4363	1387	1072	652	—	17	10	9	22	26	113	52	160	276	—	—	—	NOTTINGHAM.
DERBY.	103,291	29.9	2792	1651	470	446	197	—	17	10	9	22	26	113	52	160	276	—	—	—	DERBY.
BIRKENHEAD.	111,249	31.9	3507	2026	574	421	272	—	55	23	26	32	27	109	58	144	263	23	—	—	BIRKENHEAD.
LIVERPOOL.	633,078	47.8	22289	15384	4463	2782	2412	—	340	266	126	351	168	1221	692	1021	3360	527	48.4	28.99	LIVERPOOL.
BOLTON.	121,433	51.5	3942	2660	734	525	486	—	215	23	6	41	25	176	84	221	259	4	—	—	BOLTON.
MANCHESTER.	534,299	41.4	17708	12006	3455	2251	2032	—	629	124	47	300	100	832	430	875	2561	145	—	—	MANCHESTER.
SALFORD.	7454	41.2	5083	1636	1636	775	1170	—	473	31	32	112	66	426	143	293	767	89	—	—	SALFORD.
OLDHAM.	145,645	30.8	3793	2789	686	581	378	—	97	20	11	77	20	153	69	160	314	6	—	—	OLDHAM.
BURNLEY.	106,122	27.1	3151	2065	694	337	420	—	141	5	60	63	19	132	58	92	160	30	—	—	BURNLEY.
BLACKBURN.	131,330	18.8	3625	2554	747	535	453	—	146	7	8	82	38	172	75	120	245	57	—	—	BLACKBURN.
PRESTON.	115,103	28.1	3659	2796	960	535	648	—	318	5	4	30	35	256	63	86	219	90	—	—	PRESTON.
HUDDESFIELD.	101,454	8.6	2866	1659	309	441	150	—	27	32	20	21	15	35	53	71	173	46	47.3	33.02	HUDDESFIELD.
HALIFAX.	95,747	11.2	2150	1574	301	483	134	—	30	21	9	9	16	31	34	87	217	39	46.4	34.04	HALIFAX.
BRADFORD.	251,260	21.4	5679	4024	1014	1024	510	—	81	9	15	43	31	331	121	227	506	48	48.0	32.57	BRADFORD.
LEEDS.	409,472	19.0	12911	8118	2391	1766	1140	—	163	94	67	66	80	640	266	638	852	50	47.0	25.49	LEEDS.
SHEFFIELD.	351,648	17.9	12911	7438	2391	1498	1222	—	195	90	44	142	110	641	197	311	989	205	—	—	SHEFFIELD.
HULL.	225,045	27.4	7485	4166	1357	920	731	—	195	90	44	142	110	641	197	311	989	205	47.0	24.27	HULL.
SUNDERLAND.	142,077	43.1	4905	2792	811	602	363	—	63	11	4	8	37	38	170	97	192	38	—	—	SUNDERLAND.
GATESHEAD.	101,070	32.2	3612	1842	622	349	284	—	50	17	8	31	20	108	36	110	146	12	—	—	GATESHEAD.
NEWCASTLE.	217,555	40.5	6791	4141	1206	809	452	—	94	21	25	61	34	217	189	361	718	36	—	—	NEWCASTLE.

* By "estimated" population is meant the number of persons who would be living if the mean rate of increase in the last intercensal period had since been maintained.

† Including deaths of Londoners in the Metropolitan Workhouses, Hospitals, and Lunatic Asylums situated outside Registration London, but excluding deaths of persons not belonging to London occurring in the London Fever Hospital, in the Middlesex County Lunatic Asylum at Wandsworth, and in the Metropolitan Asylums Board Hospitals within Registration London. The deaths in the provincial towns have been similarly corrected.

TABLE 2.—33 Towns.—Birth-rates, Death-rates, and Analysis of Mortality, in the 52 Weeks of 1897.

In this Table, 0·00 indicates that the deaths were too few to give a rate of 0·005; when *no death* occurred, — is inserted.

CITIES AND BOROUGHES.	ANNUAL RATE PER 1000 PERSONS LIVING.										DEATHS under 1 Year 1000 Births.	ANNUAL DEATH RATE per 1000 living.		PERCENTAGE To Total Deaths.		CITIES AND BOROUGHES.					
	Total Deaths.					Deaths from						Aged 60 Years upwards.	Aged to 60 Years.	Deaths in Public Institutions.	Uncertified Causes of Death.						
	52 or 53 Weeks ending					Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping- cough.		Typhoid Disease.	Rever.				Diarrhea.	Violence.			
	3rd Jan. 1894.	2nd Dec. 1897.	3rd Jan. 1898.	4th Jan. 1898.	5th Jan. 1898.																
Cols.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	Cols.
33 TOWNS ..	30·7	18·1	20·7	18·9	19·1	2·87	0·00	0·55	0·18	0·31	0·41	0·18	1·24	0·71	177	10·3	70·3	7·5	20·5	1·3	.. 33 TOWNS.
LONDON*	30·0	17·8	19·9	18·6	18·2	2·58	0·00	0·43	0·18	0·51	0·41	0·13	0·92	0·78	159	10·0	67·1	9·3	29·1	0·6	LONDON*
WEST HAM.	32·2	16·2	17·9	16·1	15·7	2·61	—	0·51	0·11	0·37	0·36	0·18	1·08	0·55	172	8·1	59·2	6·1	10·6	2·7	WEST HAM.
CROYDON ..	25·0	13·2	14·5	14·2	15·1	1·43	—	0·14	0·10	0·07	0·26	0·07	0·79	0·46	135	6·1	58·5	7·7	17·5	—	CROYDON ..
BRIGHTON ..	24·7	16·4	18·9	16·1	15·1	1·64	—	0·17	0·10	0·10	0·21	0·18	0·91	0·44	144	7·4	57·2	6·5	21·0	—	BRIGHTON ..
PLYMOUTH ..	26·9	15·2	17·8	16·6	16·2	2·53	—	0·19	0·06	0·15	0·35	0·24	1·54	0·55	168	7·9	62·8	7·0	14·9	0·4	PLYMOUTH ..
FOXTMOUTH ..	28·5	18·3	20·1	19·6	19·0	2·17	—	0·50	0·05	0·13	0·54	0·08	0·87	0·42	185	9·2	61·2	6·0	11·5	0·3	FOXTMOUTH ..
BRISTOL ..	27·8	17·3	18·5	16·8	17·2	1·83	0·00	0·25	0·08	0·15	0·50	0·20	0·65	0·53	149	8·8	71·6	9·0	20·5	0·9	BRISTOL ..
CARDIFF ..	31·1	16·2	18·2	16·8	14·9	2·19	—	0·44	0·10	0·53	0·20	0·12	0·80	0·55	151	8·3	56·5	7·3	12·0	0·9	CARDIFF ..
SWANSEA ..	29·4	17·0	18·5	16·8	15·8	1·36	—	0·45	0·10	0·11	0·42	0·07	0·21	0·40	140	8·7	70·8	6·2	8·2	1·2	SWANSEA ..
WOLVERHAMPTON ..	35·1	20·7	24·4	20·0	22·0	4·22	—	0·53	0·24	0·62	0·44	0·28	2·11	0·72	217	11·5	59·8	6·5	13·4	0·6	WOLVERHAMPTON ..
BIRMINGHAM ..	33·3	18·6	20·3	20·8	21·6	3·58	—	0·79	0·18	0·29	0·44	0·18	2·00	0·77	214	11·2	74·3	4·3	16·4	3·2	BIRMINGHAM ..
NORWICH ..	30·3	18·7	19·3	17·4	18·8	2·21	—	0·03	0·10	0·09	0·43	0·29	1·76	0·60	184	7·8	66·9	6·2	12·3	1·5	NORWICH ..
LEICESTER ..	30·6	17·7	17·2	16·7	17·7	2·61	—	0·07	0·35	0·36	0·40	0·19	1·66	0·67	206	9·0	68·8	6·5	15·1	2·4	LEICESTER ..
NOTTINGHAM ..	28·9	17·2	19·0	17·5	18·8	2·81	—	0·21	0·15	0·09	0·49	0·21	1·66	0·67	206	9·0	68·8	6·5	15·1	1·1	NOTTINGHAM ..
DERBY ..	27·1	15·0	16·7	15·7	16·0	1·92	—	0·17	0·10	0·09	0·21	0·25	1·10	0·50	168	7·8	76·2	9·7	16·7	—	DERBY ..
BIRKENHEAD ..	31·6	18·1	19·5	19·2	18·3	2·45	—	0·50	0·21	0·23	0·29	0·24	0·98	0·52	164	10·1	68·5	7·1	13·0	1·1	BIRKENHEAD ..
LIVERPOOL ..	35·3	23·8	28·8	22·7	24·4	3·83	—	0·53	0·33	0·20	0·36	0·21	1·93	1·10	200	14·1	79·0	6·6	21·8	3·4	LIVERPOOL ..
BOLTON ..	29·6	18·8	24·0	26·7	22·7	4·02	—	1·18	0·23	0·05	0·33	0·19	1·45	0·69	186	12·5	85·9	8·3	9·7	0·2	BOLTON ..
MANCHESTER ..	33·2	20·4	25·2	22·6	22·0	3·81	—	1·18	0·23	0·09	0·56	0·31	1·56	0·81	185	13·4	84·2	5·8	20·8	1·2	MANCHESTER ..
SALFORD ..	35·1	21·0	25·6	22·6	22·0	5·50	—	2·22	0·23	0·15	0·53	0·34	2·00	0·67	219	13·6	76·8	5·8	15·1	1·8	SALFORD ..
OLDHAM ..	26·1	18·6	20·3	20·3	19·2	2·60	—	0·67	0·14	0·08	0·53	0·14	1·05	0·47	183	11·3	77·1	5·7	11·3	0·2	OLDHAM ..
BURNLEY ..	29·8	18·7	23·4	17·9	19·5	3·98	—	1·33	0·05	0·57	0·60	0·29	1·25	0·55	220	10·5	70·5	4·5	7·7	1·5	BURNLEY ..
BLACKBURN ..	27·7	17·9	24·3	17·5	19·5	3·45	—	1·11	0·05	0·06	0·63	0·30	1·31	0·57	206	10·5	70·5	4·7	9·6	2·2	BLACKBURN ..
PRESTON ..	31·9	20·8	23·9	20·8	24·4	5·43	—	2·77	0·04	0·03	0·26	0·29	2·23	0·55	262	12·4	81·4	3·7	7·8	3·2	PRESTON ..
HUDDESFIELD ..	23·4	15·8	16·9	17·3	16·4	1·50	—	0·27	0·32	0·20	0·21	0·15	0·35	0·52	131	9·8	71·0	4·3	10·4	2·8	HUDDESFIELD ..
HALIFAX ..	22·5	16·5	19·3	16·5	18·5	1·79	—	0·50	0·22	0·09	0·09	0·17	0·32	0·52	140	9·1	75·2	5·5	13·8	2·5	HALIFAX ..
BRADFORD ..	24·6	17·0	19·9	16·5	17·4	2·80	—	0·35	0·04	0·07	0·19	0·20	1·44	0·52	179	8·4	78·6	5·6	12·6	1·2	BRADFORD ..
LEEDS ..	31·6	17·9	20·5	18·8	19·9	3·49	—	0·40	0·23	0·16	0·24	0·30	1·57	0·55	180	10·4	79·9	7·7	10·5	0·6	LEEDS ..
SHEFFIELD ..	33·4	17·8	20·8	19·3	21·2	3·25	—	0·58	0·26	0·13	0·40	0·25	1·83	0·56	186	11·9	82·4	4·2	13·0	2·8	SHEFFIELD ..
HULL ..	33·4	17·4	20·8	18·9	18·5	3·49	—	0·11	0·27	0·14	0·25	0·35	2·23	0·71	181	9·2	67·8	7·2	14·0	1·6	HULL ..
SUNDERLAND ..	34·6	20·8	21·8	19·8	18·7	2·56	—	0·44	0·08	0·03	0·54	0·20	1·20	0·68	165	10·7	74·1	6·9	14·0	1·0	SUNDERLAND ..
GATESHEAD ..	35·8	17·7	19·6	19·1	18·5	2·33	—	0·50	0·17	0·08	0·31	0·20	1·07	0·38	172	9·4	68·1	6·0	7·9	0·9	GATESHEAD ..
NEWCASTLE ..	31·3	18·3	20·5	18·5	19·1	2·09	—	0·43	0·10	0·12	0·23	0·16	1·00	0·92	178	10·7	72·2	8·7	17·3	0·9	NEWCASTLE ..

* See note (f) to Table 1.

TABLE 3.-33 Towns.—Death-rates per 1,000 living from All Causes, and from the Principal Zymotic Diseases, and Infant Mortality, in the Ten Years 1887-96, and in 1897.

In this Table 0·00 indicates that the deaths were too few to give a rate of 0·005; when *no death* occurred, — is inserted.

ALL CAUSES.		SMALL-POX.		MEASLES.		SCARLET FEVER.		DIPHTHERIA.		WHOOPING-COUGH.		FEVER.		DIARRHŒA.		DEATHS UNDER ONE YEAR TO 1000 BIRTHS.		CITIES AND BOROUGH.
Ten years 1887-96.	1897.	Ten years 1887-96.	1897.	Ten years 1887-96.	1897.	Ten years 1887-96.	1897.	Ten years 1887-96.	1897.	Ten years 1887-96.	1897.	Ten years 1887-96.	1897.	Ten years 1887-96.	1897.	Ten years 1887-96.		
33 TOWNS.																		
20·6	19·1	0·02	0·00	0·62	0·55	0·27	0·18	0·29	0·31	0·55	0·41	0·20	0·18	0·84	1·24	167	33 TOWNS.	
19·9	18·2	0·01	0·00	0·64	0·43	0·25	0·18	0·45	0·51	0·59	0·41	0·15	0·13	0·67	0·92	155	LONDON*	
17·8	15·7	0·05	—	0·68	0·51	0·25	0·11	0·43	0·37	0·59	0·36	0·23	0·18	0·77	1·08	154	WEST HAM.	
14·5	13·1	0·00	—	0·39	0·14	0·06	0·10	0·32	0·07	0·42	0·26	0·11	0·07	0·46	0·79	126	CROYDON.	
17·7	15·1	—	—	0·40	0·14	0·07	0·06	0·18	0·10	0·34	0·21	0·24	0·18	0·66	0·91	149	BRIGHTON.	
17·6	16·2	0·01	—	0·45	0·19	0·11	0·06	0·18	0·15	0·32	0·35	0·24	0·24	0·77	1·54	147	PORTSMOUTH.	
20·9	19·0	0·01	—	0·53	0·50	0·49	0·05	0·15	0·13	0·45	0·54	0·17	0·08	0·87	1·70	185	PLYMOUTH.	
18·9	17·2	0·04	0·00	0·51	0·25	0·24	0·08	0·13	0·15	0·46	0·50	0·11	0·20	0·49	0·65	144	BRISTOL.	
19·0	14·9	0·02	—	0·45	0·44	0·21	0·10	0·27	0·53	0·49	0·20	0·17	0·12	0·83	0·80	162	CARDIFF.	
19·5	15·8	0·00	—	0·57	0·45	0·60	0·10	0·08	0·11	0·45	0·42	0·21	0·07	0·40	0·21	158	SWANSEA.	
22·0	22·0	0·01	—	0·42	0·53	0·24	0·24	0·25	0·62	0·46	0·44	0·22	0·28	1·12	2·11	184	WOLVERHAMPTON.	
20·7	21·6	0·05	—	0·49	0·79	0·22	0·18	0·19	0·29	0·66	0·44	0·16	0·18	1·05	2·00	176	BIRMINGHAM.	
18·7	18·8	0·01	—	0·47	0·03	0·13	0·00	0·22	0·09	0·40	0·43	0·13	0·28	0·82	1·27	172	NORWICH.	
19·0	17·7	0·01	—	0·47	0·21	0·16	0·35	0·12	0·36	0·40	0·40	0·21	0·19	1·50	1·76	199	LEICESTER.	
17·6	16·0	0·02	—	0·44	0·17	0·13	0·10	0·13	0·09	0·41	0·21	0·20	0·25	0·66	1·10	168	NOTTINGHAM.	
19·9	18·3	0·00	—	0·58	0·50	0·24	0·21	0·17	0·28	0·51	0·28	0·32	0·24	0·73	0·98	164	BIRKENHEAD.	
23·7	24·4	0·01	—	0·77	0·54	0·48	0·33	0·16	0·20	0·64	0·36	0·30	0·27	1·10	1·93	200	LIVERPOOL.	
22·4	22·0	0·01	—	0·80	1·76	0·39	0·19	0·12	0·05	0·62	0·34	0·30	0·21	1·25	1·45	178	BOLTON.	
25·7	23·1	0·02	—	0·80	1·18	0·50	0·23	0·27	0·02	0·61	0·58	0·27	0·19	1·07	1·56	184	MANCHESTER.	
24·7	23·9	0·01	—	0·94	2·02	0·39	0·23	0·41	0·03	0·73	0·53	0·42	0·31	1·37	2·00	195	SALFORD.	
22·5	19·2	0·10	—	0·98	0·62	0·33	0·13	0·40	0·08	0·73	0·53	0·56	0·18	0·59	1·02	183	OLDHAM.	
21·1	19·5	0·01	—	0·54	1·33	0·32	0·05	0·19	0·57	0·73	0·40	0·56	0·13	1·32	1·25	179	BURNLEY.	
23·3	19·4	0·02	—	0·63	1·11	0·47	0·05	0·16	0·06	0·51	0·63	0·57	0·30	1·21	2·00	206	BLACKBURN.	
25·1	24·4	0·05	—	0·67	2·77	0·26	0·04	0·16	0·03	0·57	0·28	0·30	0·25	2·05	2·23	262	PRESTON.	
19·0	16·4	0·00	—	0·54	0·27	0·24	0·32	0·16	0·20	0·40	0·21	0·13	0·15	0·31	0·95	163	HUDDESFIELD.	
19·7	16·5	0·06	—	0·35	0·50	0·17	0·22	0·14	0·09	0·40	0·09	0·16	0·17	0·25	0·92	160	HALEFAX.	
19·9	17·4	0·07	—	0·46	0·35	0·20	0·04	0·07	0·13	0·49	0·19	0·16	0·13	0·85	1·44	171	BRADFORD.	
20·9	19·9	0·07	—	0·57	0·40	0·21	0·23	0·10	0·16	0·45	0·24	0·23	0·20	1·03	1·57	176	LEEDS.	
21·5	21·2	0·23	—	0·59	0·56	0·41	0·26	0·15	0·13	0·53	0·40	0·23	0·31	1·13	1·83	190	SHEFFIELD.	
20·0	18·6	0·02	00·0	0·57	0·11	0·18	0·27	0·11	0·14	0·35	0·25	0·23	0·25	1·18	2·33	171	HULL.	
21·8	19·7	0·01	—	0·67	0·44	0·21	0·08	0·09	0·03	0·35	0·54	0·40	0·27	1·10	1·30	167	SUNDERLAND.	
19·9	18·3	0·00	—	0·65	0·50	0·21	0·17	0·13	0·08	0·59	0·31	0·23	0·20	0·08	1·07	165	GATESHEAD.	
21·0	19·1	0·00	—	0·58	0·43	0·15	0·10	0·20	0·12	0·52	0·38	0·17	0·16	0·65	1·00	178	NEWCASTLE.	

* See Note (†) to Table 1.

Thirty-three Great Towns: Weekly Mortality.

TABLE 4.—33 Towns.—Mean Temperature at Greenwich, and

Number of Week.	WEEK ENDING	MEAN TEM- PERATURE AT GREEN- WICH.		ANNUAL RATE OF														
		Fahrenheit.	Centigrade.	THIRTY-THREE TOWNS.	LONDON. ²	WEST HAM.	CROYDON.	BRIGHTON.	PORTSMOUTH.	PLYMOUTH.	BRISTOL.	CARDIFF.	SWANSEA.	WOLVERHAM- TON.	BIRMINGHAM.	NORWICH.	LEICESTER.	
YEAR	50°3	10°17	19°1	18°2	15°7	13°1	15°1	16°2	19°0	17°2	14°9	15°8	22°0	21°6	18°8	17°7		
1st Quarter	41°1	5°06	19°2	18°4	14°9	13°6	15°3	16°8	21°5	20°2	16°3	18°1	21°4	20°9	18°6	17°3		
2nd "	53°1	11°72	16°9	15°5	13°3	11°7	13°0	14°5	18°5	15°8	14°3	13°4	17°1	18°3	15°3	15°2		
3rd "	60°9	16°06	21°2	19°4	19°1	14°4	17°7	18°9	19°4	15°3	15°8	13°1	28°9	26°3	20°2	22°2		
4th "	46°0	7°78	19°0	19°4	15°4	12°6	14°3	14°5	16°8	17°5	13°3	18°8	20°7	20°8	20°9	15°9		
January 9	39°6	4°22	19°3	18°5	17°1	10°8	12°5	18°3	23°0	21°8	16°9	17°2	20°3	21°4	18°5	15°1		
" 16	37°8	3°22	19°2	18°0	9°1	16°4	15°5	15°4	28°3	20°4	19°3	19°8	23°9	22°2	20°8	15°9		
" 23	31°1	-0°50	19°7	18°1	14°9	12°0	14°2	16°6	18°2	20°2	17°8	19°8	20°9	21°8	19°4	20°5		
" 30	33°1	0°61	20°6	19°9	19°8	10°8	20°2	16°0	33°6	23°1	18°1	21°8	27°5	25°3	18°9	16°1		
February 6	37°8	3°22	20°8	20°6	18°3	14°2	20°2	20°3	16°6	23°3	17°8	20°8	20°9	20°8	19°9	17°4		
" 13	41°4	5°22	19°6	18°6	14°5	12°5	17°2	16°3	26°2	23°8	12°6	22°4	19°7	22°8	17°5	16°1		
" 20	43°6	6°44	18°8	17°8	13°7	15°5	14°2	15°1	20°3	17°5	16°6	19°2	18°5	21°0	16°1	15°6		
" 27	48°1	8°94	19°4	19°0	13°5	18°1	13°3	15°7	21°4	23°1	14°1	15°1	20°3	20°3	24°1	20°5		
March 6	40°6	4°78	18°1	17°4	15°4	12°9	15°0	14°9	21°4	18°6	15°9	15°6	20°9	21°0	18°9	15°6		
" 13	41°0	5°00	18°6	18°4	15°1	15°9	15°5	16°6	19°2	24°5	17°8	15°6	17°9	18°5	18°0	18°2		
" 20	46°5	8°06	18°7	17°9	14°7	12°0	12°9	17°1	16°0	16°8	15°6	18°2	24°5	19°6	12°3	17°9		
" 27	51°9	11°06	18°7	17°9	14°5	12°9	13°7	19°7	16°0	13°2	15°6	14°6	22°1	19°9	23°2	17°7		
April 3	42°2	5°67	18°3	17°6	12°6	12°9	14°2	17°1	19°2	16°6	13°8	15°1	20°9	17°6	14°7	17°9		
" 10	42°4	5°78	18°6	17°5	12°6	15°1	11°2	16°0	16°6	17°3	16°6	13°5	19°1	19°2	14°7	19°0		
" 17	47°4	8°56	17°9	16°6	13°3	9°5	18°0	16°8	18°2	15°3	16°9	10°9	13°1	18°5	19°4	17°4		
" 24	46°4	8°00	18°8	17°5	17°3	11°2	12°5	13°1	24°0	16°8	17°2	13°0	17°9	19°2	16°6	17°9		
May 1	51°2	10°67	18°3	16°8	9°9	12°9	12°5	14°9	12°8	20°7	13°8	17°2	14°9	20°7	18°0	17°2		
" 8	49°7	9°83	17°0	15°5	13°1	12°5	15°9	14°9	23°5	15°7	12°0	14°0	19°1	16°0	11°8	12°8		
" 15	47°3	8°50	16°5	15°6	12°4	11°6	12°0	13°4	20°8	17°3	13°5	10°4	16°1	16°8	10°9	12°0		
" 22	57°3	14°06	17°2	15°4	13°7	12°9	17°2	20°3	22°4	17°7	15°9	14°0	16°7	17°7	19°9	13°1		
" 29	53°5	11°94	16°6	14°9	13°3	6°9	13°3	12°9	18°7	13°7	9°5	12°5	19°1	17°2	14°2	14°6		
June 5	59°3	15°17	17°4	15°4	15°1	13°8	12°0	13°4	18°2	18°9	15°6	17°2	19°1	20°2	13°7	18°4		
" 12	58°6	14°78	15°6	13°8	13°3	8°2	10°7	14°9	12°3	13°7	13°2	12°0	14°9	19°8	12°8	14°1		
" 19	59°8	15°44	15°8	14°6	9°9	12°0	11°6	13°4	13°9	12°6	12°6	12°0	16°7	18°6	16°6	15°4		
" 26	64°0	17°78	15°7	14°6	15°1	15°5	9°9	13°4	17°6	12°1	15°3	15°1	17°9	17°0	13°7	11°8		
July 3	64°4	18°00	14°7	13°5	13°5	10°3	12°0	11°7	21°9	13°5	13°8	12°0	17°9	17°3	17°0	14°3		
" 10	61°5	16°39	15°1	15°1	9°3	7°3	12°5	12°9	14°4	12°3	12°6	8°8	17°9	16°4	17°0	11°3		
" 17	65°5	18°61	16°6	16°3	14°1	11°2	12°0	13°7	14°4	11°7	13°5	13°0	24°5	16°2	18°9	15°9		
" 24	66°9	19°39	19°3	20°0	17°9	10°3	14°2	20°8	15°0	15°7	13°8	10°9	19°1	22°5	16°6	18°7		
" 31	64°6	18°11	22°9	23°6	24°0	9°9	14°6	28°0	21°9	16°4	13°5	16°1	28°7	27°0	20°8	21°0		
August 7	68°1	20°06	26°9	25°7	27°2	16°4	18°0	27°7	18°7	17°7	21°2	16°6	34°1	34°0	18°9	26°6		
" 14	63°6	17°56	29°5	26°2	31°4	16°4	27°1	24°0	33°6	18°2	22°7	14°6	34°6	43°0	25°6	34°1		
" 21	62°0	16°67	28°7	24°2	21°7	27°1	30°9	25°4	29°9	18°9	21°8	17°2	52°6	42°9	27°0	35°6		
" 28	59°6	15°33	24°6	20°4	20°4	21°1	19°8	20°6	27°8	15°5	22°4	17°2	32°3	34°5	22°2	27°9		
Sept. 4	56°8	13°78	20°7	17°0	20°8	17°6	21°5	16°3	15°0	15°5	15°9	10°4	33°5	24°1	18°0	23°8		
" 11	54°2	12°33	19°4	16°3	17°5	9°5	13°7	14°0	15°5	13°5	11°3	11°4	31°1	22°2	19°4	23°6		
" 18	54°6	12°56	18°5	16°1	13°3	12°0	16°8	15°7	18°7	13°2	10°7	10°9	25°7	22°3	28°4	20°0		
" 25	55°4	13°00	17°1	15°7	15°2	15°9	13°7	14°0	11°2	16°6	14°7	10°4	20°3	20°0	14°7	16°9		
October 2	56°5	13°61	16°8	15°3	15°6	12°0	15°5	12°9	16°6	13°9	11°7	13°0	21°5	17°1	15°6	13°3		
" 9	48°4	9°11	16°2	15°5	16°0	9°9	12°9	9°4	12°8	13°5	12°6	14°0	25°1	16°3	13°7	13°3		
" 16	51°9	11°06	16°9	16°1	12°0	11°6	13°3	14°9	17°1	16°2	9°2	9°9	18°5	23°7	16°1	12°8		
" 23	53°7	12°06	16°9	16°8	17°1	12°5	14°6	13°1	11°7	14°1	13°8	14°6	22°7	20°0	13°7	14°6		
" 30	49°8	9°89	17°6	17°7	13°5	10°3	10°7	10°9	16°6	16°8	9°5	15°6	25°7	19°8	16°6	10°5		
Nov. 6	45°7	7°61	18°1	18°5	16°8	11°6	15°5	15°4	15°5	13°9	15°3	14°0	21°5	20°7	17°5	11°5		
" 13	48°0	8°89	19°0	19°3	14°6	14°2	15°1	11°7	15°9	10°7	19°2	17°3	21°7	14°2	12°6	16°1		
" 20	47°5	8°61	18°6	18°9	14°1	13°8	14°6	13°4	13°9	16°6	14°4	17°7	16°1	20°1	15°1	17°7		
" 27	43°4	6°33	20°2	20°9	17°7	12°5	12°0	13°1	22°4	19°5	11°0	28°6	19°1	20°9	18°0	16°4		
Dec. 4	39°0	3°89	19°8	20°2	18°7	9°9	15°0	15°4	20°3	18°6	13°2	21°3	23°3	19°2	27°9	17°2		
" 11	41°7	5°39	20°8	21°8	15°4	17°2	15°9	18°6	24°6	18°0	14°4	21°8	23°3	21°8	34°1	16°9		
" 18	46°2	7°89	20°7	21°0	14°1	14°2	16°8	14°6	18°7	21°6	14°4	20°3	18°5	24°0	27°9	20°7		
" 25	35°8	2°11	17°7	18°2	16°2	9°0	10°7	14°9	15°5	17°3	16°9	26°5	14°3	17°1	18°9	15°4		
January 1	45°1	7°28	24°9	27°6	14°7	16°4	19°3	20°0	17°1	24°9	18°1	20°3	23°9	24°8	37°4	24°1		

* See note (f) to Table 1.

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MORTALITY PER 1000 IN

NOTTINGHAM.	DERBY.	BIRKENHEAD.	LIVERPOOL.	BOLTON.	MANCHESTER.	SALFORD.	OLDHAM.	BURNLEY.	BLACKBURN.	PRESTON.	HUDDERSFIELD.	HAULFAX.	BRADFORD.	LEEDS.	SHEFFIELD.	HULL.	SUNDERLAND.	GATESHEAD.	NEWCASTLE.	Number of Week.
18'8	16'0	18'3	24'4	22'0	23'1	23'9	19'2	19'5	19'5	24'4	16'4	16'5	17'4	19'9	21'2	18'6	19'7	18'3	19'1	
20'7	16'0	18'0	23'9	22'5	23'5	23'1	19'9	20'1	20'3	21'6	17'6	17'2	18'2	20'0	18'5	17'3	20'0	17'7	18'8	
15'5	15'1	16'2	21'8	23'4	22'7	25'5	18'6	18'1	17'3	20'2	16'2	17'2	15'5	16'7	19'4	15'5	18'4	16'6	17'9	
21'7	17'7	20'9	28'8	21'1	26'0	28'1	19'3	20'2	19'8	33'9	13'8	13'2	20'0	21'9	26'1	25'1	22'1	20'5	21'6	
17'2	15'4	18'0	22'9	20'8	20'2	18'9	19'0	19'7	20'6	21'7	18'1	18'3	16'1	20'9	20'8	16'4	18'3	18'2	18'1	
19'9	15'1	18'7	23'6	23'2	22'7	19'6	18'2	19'2	22'2	22'2	20'0	20'1	17'6	21'9	20'7	15'8	16'9	20'1	22'1	1
23'3	20'2	17'3	25'1	21'0	23'3	18'8	16'4	16'7	22'6	24'9	22'6	20'7	16'0	20'5	20'3	18'3	20'2	22'7	17'7	2
19'7	13'6	20'6	29'2	22'3	26'0	17'9	23'6	23'6	21'8	21'3	20'2	14'2	20'1	20'2	21'2	16'9	23'5	16'0	19'4	3
21'7	16'2	23'4	25'7	18'9	22'3	25'7	18'9	18'2	20'6	15'9	24'2	14'7	21'0	20'1	19'4	16'2	19'8	16'0	20'4	4
18'8	19'7	17'8	25'2	25'3	27'2	23'5	24'7	22'1	24'2	20'8	11'3	16'3	19'4	21'5	18'4	18'1	18'3	21'2	14'6	5
21'0	20'7	18'3	25'5	21'5	23'9	21'8	20'7	23'6	17'1	21'3	22'1	14'2	18'5	20'5	18'1	19'9	21'3	13'4	17'3	6
23'1	17'7	22'0	23'8	19'8	22'3	23'2	21'1	25'1	21'4	25'8	14'9	17'4	18'5	20'0	15'6	15'3	18'7	20'1	21'6	7
17'2	16'2	18'3	24'0	21'0	21'2	24'0	23'2	22'6	21'4	22'7	12'8	13'6	16'5	20'8	19'3	17'8	21'3	21'7	18'9	8
18'1	12'6	13'6	19'4	19'8	23'0	22'7	17'5	16'2	24'2	19'9	13'9	18'5	16'9	20'2	17'8	19'5	18'7	15'5	17'5	9
17'5	19'2	16'9	23'3	25'3	23'0	25'2	15'7	13'8	15'5	18'1	12'8	18'0	19'2	19'6	17'9	15'5	15'0	17'0	12'2	10
20'4	9'6	16'4	21'7	17'6	24'4	26'9	20'0	13'8	16'6	25'4	16'4	16'9	19'6	20'2	19'0	17'6	21'3	17'0	22'8	11
24'0	13'6	15'9	21'5	22'3	24'0	24'2	21'5	19'2	20'9	22'2	21'1	18'0	18'0	16'7	18'7	17'8	22'0	16'5	20'1	12
24'0	13'1	15'0	22'7	34'8	23'9	26'4	16'4	27'0	14'7	19'9	16'4	21'2	15'6	17'8	15'9	16'2	22'4	13'4	19'4	13
19'7	14'6	22'0	23'1	24'9	26'7	27'1	21'5	16'2	15'5	21'7	26'2	14'2	17'6	16'0	18'1	18'3	17'2	17'0	20'4	14
11'9	14'6	18'3	22'6	26'2	23'3	28'1	18'9	19'7	25'8	20'4	19'0	23'4	13'8	12'3	15'7	16'5	18'7	19'1	18'7	15
18'6	10'1	14'1	24'7	36'1	28'8	27'9	20'4	21'6	21'0	19'5	16'4	19'1	18'5	17'7	18'1	15'3	21'6	11'3	17'0	16
15'7	17'2	14'1	22'2	28'3	25'2	28'9	18'9	19'7	27'8	18'6	14'9	16'3	16'2	17'3	22'4	21'8	18'7	15'5	19'7	17
18'6	12'6	13'6	19'9	25'8	25'6	25'9	18'6	25'1	16'3	30'4	13'4	14'7	14'0	20'2	19'1	15'8	18'7	16'5	14'6	18
15'2	21'2	17'3	21'2	18'2	22'3	23'0	17'9	14'2	14'1	18'1	11'3	13'6	16'2	13'5	21'0	15'3	22'0	14'4	19'9	19
19'0	18'2	15'0	23'3	16'3	22'0	21'5	18'6	22'1	17'1	15'4	17'5	16'9	13'1	18'3	20'9	17'4	14'7	18'6	16'8	20
16'1	16'7	14'1	22'0	23'9	21'6	26'8	20'0	22'1	14'7	15'9	15'9	19'6	15'1	18'3	24'0	14'4	14'7	23'2	17'5	21
13'7	13'1	13'1	23'1	23'6	21'9	22'7	22'5	16'2	18'3	16'8	17'0	23'4	19'4	15'8	23'8	14'6	18'3	18'1	15'8	22
16'1	15'6	19'9	21'1	20'6	20'3	23'7	15'7	13'3	16'3	18'1	12'3	19'1	16'5	15'9	17'8	15'5	17'6	20'6	17'9	23
12'1	13'1	18'7	19'8	22'8	20'1	26'9	16'1	10'8	13'5	22'2	21'6	15'8	14'7	15'8	18'7	10'9	19'4	14'4	19'5	24
13'0	17'2	16'4	20'9	22'3	19'5	22'3	18'6	14'7	11'1	20'4	11'8	15'8	14'4	14'3	18'4	12'3	19'8	12'4	19'4	25
12'1	11'6	16'9	20'1	14'2	19'0	21'0	13'6	20'1	12'7	25'4	12'8	11'4	12'4	11'5	14'8	13'2	17'6	15'0	15'3	26
11'6	10'6	17'3	20'3	14'6	18'7	21'3	17'9	20'6	12'9	23'1	8'7	10'9	13'8	14'8	15'3	15'3	14'7	12'9	14'9	27
15'9	11'6	15'9	19'3	15'9	20'8	23'5	20'7	14'7	17'3	22'2	14'9	11'4	15'6	13'0	18'4	14'1	24'2	13'4	18'2	28
19'5	10'1	19'7	26'4	16'3	19'8	24'9	16'1	13'8	18'9	22'2	12'8	10'9	13'1	18'1	25'3	13'7	16'5	20'6	14'9	29
22'8	18'2	23'4	32'6	24'0	25'7	23'2	24'2	12'2	17'7	18'3	31'7	10'3	15'8	19'6	32'0	16'2	19'8	22'7	15'8	30
34'2	17'7	32'8	41'3	24'0	30'5	33'5	22'9	24'1	22'6	46'2	12'3	12'0	22'8	30'2	35'1	20'4	16'1	13'9	19'2	31
32'5	25'7	33'7	40'9	26'0	38'3	39'6	21'5	30'5	25'0	42'2	16'4	15'8	27'7	35'4	37'9	28'7	25'7	26'3	27'1	32
32'0	27'8	24'8	38'3	33'1	39'2	38'9	18'2	28'5	25'4	45'3	12'8	12'0	31'6	29'9	32'2	45'2	24'2	23'2	29'5	33
23'5	24'2	24'4	30'6	18'8	28'9	32'5	22'9	28'5	27'8	47'6	14'4	21'8	25'5	27'3	29'2	41'9	31'2	29'4	30'0	34
21'0	19'2	16'9	28'1	22'8	25'6	30'8	28'2	17'7	23'8	44'4	15'9	18'5	20'1	19'2	25'1	37'5	25'2	25'3	26'6	35
19'9	19'7	19'7	26'9	23'6	26'8	26'7	21'8	16'2	19'5	35'3	16'4	8'2	22'8	23'3	26'1	28'5	22'7	22'7	23'0	36
16'6	17'7	18'7	24'1	22'8	22'8	28'9	18'9	15'2	22'6	25'8	14'9	13'1	17'6	20'5	22'2	24'3	26'1	20'1	20'9	37
16'3	11'1	10'3	22'5	19'8	22'3	20'1	19'7	17'7	15'5	21'3	14'9	14'7	16'7	15'7	22'4	18'5	21'3	16'0	18'7	38
16'6	16'2	13'6	23'7	18'5	21'3	20'3	19'7	17'2	12'7	23'1	13'9	12'0	17'1	18'2	16'9	21'3	17'6	20'1	21'6	39
13'9	12'1	15'5	20'9	26'2	21'5	17'9	17'9	12'5	13'3	11'5	18'1	18'5	10'9	14'4	18'2	19'4	16'5	21'3	18'1	40
17'0	20'2	15'9	22'4	21'5	20'8	18'1	17'2	14'2	14'7	23'6	13'4	10'9	13'8	16'6	17'8	15'1	17'6	21'2	16'7	41
13'4	11'6	16'4	20'5	20'6	19'5	17'4	16'4	16'7	16'3	20'8	18'0	13'6	13'1	19'0	18'5	15'3	16'9	12'4	17'7	42
14'1	19'7	19'2	21'3	24'0	21'0	20'1	17'5	18'2	20'2	19'0	16'4	20'7	12'0	16'0	22'2	16'5	15'0	19'1	19'9	43
15'9	12'1	20'6	23'4	16'7	18'6	16'9	21'8	22'1	17'9	15'9	20'0	15'2	14'9	19'2	20'2	15'3	15'0	15'0	19'4	44
16'1	15'1	18'3	23'1	27'1	18'9	22'3	21'5	26'5	17'5	25'4	16'4	18'5	18'3	19'2	24'7	15'3	18'3	13'9	17'0	45
17'9	14'1	17'8	24'3	19'3	21'0	19'6	15'0	22'1	19'5	20'8	15'4	18'6	11'3	21'7	16'7	14'4	21'3	19'6	18'0	46
17'7	15'6	17'8	23'2	16'3	20'1	22'5	28'2	24'1	21'4	23'1	15'9	21'2	16'5	22'7	23'7	15'5	16'1	18'6	20'1	47
15'4	13'1	16'4	23'8	15'9	19'4	14'2	21'1	16'2	24'6	22'7	23'1	21'2	17'1	26'2	22'4	18'1	18'0	23'2	18'0	48
21'9	16'2	26'7	26'4	23'2	19'5	16'1	22'5	21'6	21'4	24'0	17'0	16'9	15'3	21'3	19'1	16'9	17'2	25'3	14'9	49
16'6	17'2	15'9	23'8	18'5	19'6	21'0	24'0	18'7	26'2	22'2	17'5	19'6	20'3	20'3	22'8	20'2	25'3	21'2	18'2	50
19'9	13'6	18'7	17'7	15'9	19'8	18'1	11'8	17'2	25'8	19'9	18'5	17'4	17'8	17'7	19'9	15'3	17'2	13'9	16'3	51
24'0	13'7	14'1	17'1	25'3	22'9	22'0	21'1	24'6	30'6	27'2	24'7	32'7	24'1	27'6	22'4	19'2	19'1	15'5	21'1	52

TABLE 5 (continued).—Sixty-seven other large Towns.—Population : Persons to an Acre ; Births and Deaths in 1897.

TOWNS* (Urban Districts).	The DEATHS registered in the year include																			TOWNS* (Urban Districts).
	Persons to an Acre, 1897.	DEATHS.	BIRTHS.	2.	3.	4.	DEATHS from										Deaths in Public Institutions.	Uncertified Causes of Death.		
							DEATHS of		Principal Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping- cough.	Fever.	Diarrhoea.			Violence.	
							Infants under 1 Year of Age.	Persons aged 60 Years and upwards.												
POPULATION estimated to the Middle of 1897.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	Cols.	
Lincoln	44,337	11.8	1247	747	202	234	80	—	2	4	1	15	5	53	20	34	59	19	Lincoln.	
Grimby	61,130	21.6	1919	1041	406	194	203	—	13	3	28	20	11	123	42	73	79	22	Grimby.	
Stockport	77,914	35.4	2471	1726	531	360	320	—	71	17	4	37	18	173	46	88	184	7	Stockport.	
Macclesfield	35,069	10.9	974	759	171	264	99	—	53	4	7	11	4	29	19	40	102	6	Macclesfield.	
Chester	37,301	12.6	1063	742	198	216	151	—	12	3	8	8	5	22	22	47	125	10	Chester.	
Bootle	82,363	32.8	1747	1123	354	194	167	—	12	13	21	15	21	118	50	53	181	33	Bootle.	
St. Helens	83,242	11.4	3186	1746	932	249	181	—	91	43	6	35	3	140	71	58	185	84	St. Helens.	
Southport	46,457	13.2	1003	830	181	262	178	—	34	10	4	38	11	81	43	62	152	29	Southport.	
Wigan	33,157	27.3	2252	1263	385	198	173	—	51	30	2	28	5	68	30	35	128	75	Wigan.	
Warrington	53,396	20.2	2279	1242	402	218	157	—	51	30	2	28	5	68	30	35	128	75	Warrington.	
Bury	49,239	31.8	1512	1043	268	302	147	—	30	17	5	7	17	71	36	54	110	19	Bury.	
Ashton-under-Lyne	42,823	31.9	1191	1313	272	218	180	—	64	7	7	17	5	37	29	60	103	39	Ashton-under-Lyne.	
Rochdale	43,093	17.5	1838	1313	259	365	140	—	22	10	8	8	5	24	23	35	26	19	Rochdale.	
Accrington	43,801	12.8	1062	471	301	171	77	—	30	4	2	14	8	18	20	29	20	10	Accrington.	
Darwen	37,304	6.3	1109	670	151	115	72	—	30	4	3	14	8	62	33	39	53	25	Darwen.	
Barrow-in-Furness	54,706	5.0	1587	808	256	147	110	—	17	6	3	14	8	62	33	39	53	25	Barrow-in-Furness	
Keighley	39,313	10.1	1128	651	156	147	67	—	28	5	3	2	13	16	10	14	85	28	Keighley.	
Wakefield	37,315	20.7	1937	581	191	138	56	—	3	6	—	4	4	31	37	65	78	1	Wakefield.	
Barnsley	39,498	16.6	1436	825	281	157	156	—	14	22	4	10	10	102	42	44	100	—	Barnsley.	
Rotherham	47,365	7.9	1721	1006	370	188	177	1	24	10	9	35	18	70	43	43	85	33	Rotherham.	
York	71,459	19.2	2274	1369	449	380	216	—	28	6	4	18	5	32	30	30	172	12	York.	
Scarborough	35,997	15.3	944	611	153	226	61	—	10	6	—	15	6	38	43	48	30	48	Scarborough.	
Middlesbrough	91,131	32.3	2926	1683	505	268	202	—	28	11	16	18	30	67	60	86	167	73	Middlesbrough.	
Darlington	40,033	10.1	1179	600	150	173	41	—	—	9	1	12	4	15	22	28	45	33	Darlington.	
Stockton-on-Tees	55,510	18.3	1639	812	246	246	106	—	27	3	6	27	7	36	36	43	73	33	Stockton-on-Tees	
West Hartlepool	33,883	20.1	1798	825	257	171	132	—	20	3	2	24	7	33	27	53	66	10	West Hartlepool.	
South Shields	95,798	52.1	3233	1557	493	311	159	—	26	6	3	24	14	73	27	120	118	23	South Shields.	
Jarrow	40,084	55.1	1199	936	176	89	43	—	26	1	8	5	5	26	33	61	32	23	Jarrow.	
Tynemouth	48,201	11.2	1507	936	249	226	98	—	13	8	9	24	9	40	26	44	86	23	Tynemouth.	
Carlisle	40,888	20.2	1339	797	171	229	50	—	—	—	9	20	3	17	26	44	106	23	Carlisle.	
Newport	68,175	15.3	2207	1084	367	223	76	—	13	5	7	10	12	29	58	116	127	7	Newport.	
Rhondda	117,948	4.8	4210	2043	826	401	246	—	136	19	73	55	27	54	103	128	136	26	Rhondda.	
Merthyr Tydfil	65,714	3.7	2454	1609	513	260	252	—	97	16	41	29	15	54	77	130	112	30	Merthyr Tydfil.	
Aberdare	41,639	2.7	1613	831	344	157	172	—	72	9	34	3	8	46	33	49	19	1	Aberdare.	

* See note (†) to Table 1.

† Formerly named Ystradyfodwg.

TABLE 6.—Sixty-seven other large Towns.—Birth-rates, Death-rates, and Analysis of Mortality in 1897.

TOWNS* (Urban Districts).	ANNUAL RATE PER 1000 PERSONS LIVING.										DEATHS under 1 Year to 1000 Births.	ANNUAL DEATH-RATE per 1000 living.		PERCENTAGE to Total Deaths.			TOWNS* (Urban Districts).	
	DEATHS FROM											Aged 1 Year to 60 Years upwards.	Aged 60 Years and upwards.	15.	16.	17.		
	Principal Zymotic Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping- cough.	Fever.	Diarrhoea.	Violence.	12.	13.	14.						
67 Towns	..	30.1	17.2	2.41	0.00	0.43	0.15	0.24	0.38	0.16	1.05	0.57	8.8	67.2	5.8	9.9	2.0	67 Towns.
Dover	..	27.5	15.4	1.47	—	0.06	0.06	0.25	0.20	0.14	0.76	0.68	7.2	63.4	5.3	16.1	6.6	Dover.
Hastings	..	17.2	12.6	0.78	—	0.05	0.03	0.08	0.23	0.05	0.34	0.40	4.2	57.6	6.3	8.8	3.5	Hastings.
Eastbourne	..	18.2	8.2	0.86	—	—	—	—	—	—	—	—	4.3	34.4	6.8	17.9	0.7	Eastbourne.
Bournemouth	..	12.7	10.1	0.93	—	—	0.08	0.12	0.29	0.09	0.34	0.24	6.1	43.5	4.5	9.5	0.7	Bournemouth.
Southampton	..	32.8	18.9	2.53	—	0.50	0.10	0.10	0.78	0.07	1.04	0.59	9.0	70.4	8.4	9.9	—	Southampton.
Reading	..	26.7	14.1	1.85	—	0.21	0.04	0.01	0.31	0.09	1.19	0.41	6.4	66.8	4.7	12.3	1.8	Reading.
Willesden	..	28.4	12.2	2.47	—	0.14	0.11	0.64	0.47	0.12	0.99	0.30	5.9	49.0	2.8	9.6	2.8	Willesden.
Hornsey	..	22.5	9.3	1.22	—	0.12	0.03	0.27	0.17	—	0.63	0.20	3.9	61.6	5.4	6.1	—	Hornsey.
Tottenham	..	30.9	14.6	2.34	—	0.21	0.15	0.34	0.46	0.11	1.07	0.34	6.8	65.8	8.1	7.6	0.2	Tottenham.
Oxford	..	23.9	14.6	1.02	—	0.08	—	0.04	0.49	0.12	0.20	0.39	7.0	66.3	6.7	20.7	0.1	Oxford.
Northampton	..	55.9	16.4	2.71	—	0.03	0.08	0.06	0.96	0.10	0.60	0.59	13.0	68.9	4.9	13.9	2.9	Northampton.
Cambridge	..	24.5	14.5	0.87	—	—	—	0.03	0.05	0.21	0.83	0.45	7.1	59.0	4.2	24.3	0.7	Cambridge.
Leyton	..	30.4	13.0	2.07	—	0.08	0.20	0.28	0.30	0.18	1.03	0.20	6.0	50.8	2.3	5.9	4.3	Leyton.
Walthamstow	..	30.2	11.2	2.32	—	0.26	0.08	0.39	0.23	0.17	1.14	0.36	5.6	40.6	5.6	7.5	3.1	Walthamstow.
Colchester	..	24.7	11.2	1.04	—	0.05	0.15	0.13	0.18	0.20	0.36	0.59	6.5	71.0	7.2	11.7	—	Colchester.
Ipswich	..	23.3	16.9	1.46	—	—	—	0.10	0.37	0.08	0.88	0.53	7.8	72.4	6.5	10.6	0.9	Ipswich.
Great Yarmouth	..	29.3	18.7	3.71	—	0.33	0.25	0.63	0.31	0.35	1.84	0.82	8.2	64.5	7.5	13.0	0.2	Great Yarmouth.
Exeter	..	24.2	19.7	2.72	—	0.99	—	0.05	0.53	0.45	0.70	0.51	10.0	70.2	10.9	13.5	—	Exeter.
Devonport	..	26.8	14.9	1.50	—	0.03	0.05	0.22	0.41	0.13	0.66	0.54	7.1	55.5	7.3	11.1	0.8	Devonport.
Bath	..	19.5	16.5	1.02	—	0.17	0.10	0.29	0.23	0.06	0.17	0.69	8.0	63.4	7.5	20.2	—	Bath.
St. George (near Bristol)	..	37.1	14.2	1.90	—	0.31	0.02	0.24	0.40	0.04	0.89	0.33	6.8	53.9	6.1	3.3	1.7	St. George (near Bristol).
Glooucester	..	32.2	18.4	3.06	—	1.21	0.31	0.87	0.02	0.14	0.51	0.87	10.1	69.9	6.3	17.1	3.4	Glooucester.
Cheltenham	..	22.4	17.0	1.30	—	0.04	0.02	0.13	0.49	0.04	0.58	0.39	6.6	73.6	5.3	15.3	1.9	Cheltenham.
Longton	..	37.6	25.6	5.95	—	0.43	0.03	0.22	0.64	0.16	1.47	0.51	13.2	86.6	4.6	5.3	2.6	Longton.
Hanley	..	35.5	21.3	3.44	—	0.10	0.22	0.22	0.89	0.12	1.39	0.86	10.5	88.6	5.6	5.3	1.3	Hanley.
Burton-upon-Trent	..	28.1	14.4	1.55	—	0.14	0.16	0.18	0.12	0.20	0.73	0.45	7.5	73.6	10.4	10.4	1.4	Burton-upon-Trent.
Walsall	..	34.2	20.4	3.79	—	0.80	0.37	0.33	0.10	0.16	2.24	0.79	11.1	73.6	6.9	6.9	0.8	Walsall.
West Bromwich	..	37.1	20.6	3.41	—	1.01	0.33	0.09	0.13	0.13	1.51	0.83	10.2	75.1	5.7	12.4	0.3	West Bromwich.
Dudley	..	38.2	20.7	2.29	—	0.07	0.26	0.04	0.26	0.18	1.43	0.97	17.3	78.2	5.6	11.0	7.2	Dudley.
Worcester	..	38.2	19.9	3.01	—	0.72	0.04	0.76	0.52	0.07	0.90	0.72	10.1	74.8	6.9	17.4	1.2	Worcester.
Smethwick	..	36.7	17.4	2.52	—	0.42	0.07	0.40	0.22	0.13	1.23	0.26	8.2	74.9	4.3	4.0	0.9	Smethwick.
Aston Manor	..	32.4	17.5	4.20	—	0.88	0.10	0.21	0.58	0.15	2.38	0.29	7.9	62.8	1.8	3.9	4.4	Aston Manor.
Coventry	..	32.8	17.6	2.25	—	0.31	0.10	0.10	0.14	0.07	1.53	0.38	7.9	68.2	3.1	12.1	2.8	Coventry.

* See note (†) to Table 1.

TABLE 6 (continued).—Sixty-seven other large Towns.—Birth-rates, Death-rates, and Analysis of Mortality in 1897.

TOWNS* (Urban Districts).	ANNUAL RATE PER 1000 PERSONS LIVING.											DEATHS under 1 Year to 1000 Births.	ANNUAL DEATH-RATE per 1000 living.		PERCENTAGE to Total Deaths.			TOWNS* (Urban Districts).				
	BIRTHS.	DEATHS.	DEATHS from						Principal Zymotic Diseases.	Small-pox.	Measles.		Scarlet Fever.	Diphtheria.	Whooping- cough.	Fever.	Diarrhoea.		Violence.	Inquest Cases.	Deaths in Public Institutions.	Uncertified Causes of Death.
			3.	4.	5.	6.	7.	8.															9.	10.	11.	12.	13.	14.	15.	16.	17.
Coln.	1.	2.																				Cols.
Lincoln	28.1	16.8	1.81	—	0.05	0.09	0.02	0.34	0.11	1.20	0.45	162	7.8	73.2	4.6	7.9	2.5					Lincoln.
Grimsb'y	31.4	17.0	3.32	—	0.29	0.05	0.46	0.33	0.18	2.01	0.69	212	7.8	62.5	7.0	7.6	2.1					Grimsb'y.
Stockport	31.7	22.2	4.10	—	0.91	0.22	0.05	0.47	0.23	2.22	0.59	215	11.7	75.5	5.1	10.7	0.4					Stockport.
Macclesfield	27.8	21.6	2.81	—	1.51	0.11	0.20	0.31	0.11	0.57	0.54	176	10.5	78.9	5.3	13.4	0.8					Macclesfield.
Chester	28.5	19.9	1.35	—	0.08	0.13	0.21	0.21	0.13	0.59	0.59	186	9.8	77.6	6.3	16.9	1.3					Chester.
Bootle	33.4	21.5	3.57	—	0.23	0.25	0.15	0.29	0.40	2.25	1.34	203	11.8	87.2	7.3	16.1	2.9					Bootle.
St. Helens	38.3	21.0	4.33	—	1.09	0.52	0.25	0.42	0.37	1.08	0.61	186	11.8	71.9	3.3	10.6	4.8					St. Helens.
Southport	29.7	16.9	1.19	—	0.08	0.12	0.12	0.29	0.06	0.52	0.31	180	8.7	62.8	2.6	8.3	3.5					Southport.
Wigan	37.7	21.1	2.99	—	0.57	0.17	0.07	0.64	0.08	1.36	0.72	171	12.3	72.8	4.9	12.0	2.3					Wigan.
Warrington	35.9	19.4	2.47	—	0.80	0.05	0.03	0.44	0.08	1.07	0.61	176	10.5	74.7	2.8	10.4	6.1					Warrington.
Bury	25.7	19.0	2.51	—	0.51	0.29	0.09	0.12	0.29	1.21	0.61	177	10.1	86.3	4.8	9.8	1.7					Bury.
Ashton-under-Lyne	27.9	22.1	4.20	—	1.26	0.14	0.16	0.63	0.40	1.61	0.49	228	11.6	78.3	4.1	12.2	1.2					Ashton-under-Lyne.
Rochdale	25.4	18.0	1.93	—	0.92	0.10	0.10	0.23	0.07	0.51	0.40	189	10.3	78.7	4.6	7.8	3.0					Rochdale.
Accrington	24.2	16.9	1.75	—	0.50	0.23	0.11	0.18	0.11	0.55	0.52	189	9.1	75.9	4.7	3.5	2.6					Accrington.
Darwen	29.7	18.0	1.92	—	0.80	0.11	0.05	0.27	0.21	0.48	0.54	163	9.9	84.8	4.3	3.0	1.5					Darwen.
Barrow-in-Furness	29.0	14.8	2.01	—	0.31	0.11	0.05	0.26	0.15	1.13	0.60	161	7.9	74.7	4.8	6.6	3.1					Barrow-in-Furness.
Keighley	28.7	16.6	1.71	—	0.71	0.13	0.08	0.05	0.33	0.41	0.25	138	9.7	64.5	2.2	13.1	4.3					Keighley.
Wakefield	25.1	15.6	1.50	—	0.08	0.16	—	0.32	0.11	0.83	0.99	172	8.2	61.0	11.2	13.4	0.2					Wakefield.
Barnsley	36.4	20.9	3.94	—	0.35	0.56	0.10	0.10	0.25	2.38	1.06	196	10.8	69.7	9.5	12.1	—					Barnsley.
Rotherham	36.3	21.2	3.74	—	0.72	0.21	0.19	0.74	0.38	1.48	0.63	180	12.1	67.8	9.4	8.4	3.3					Rotherham.
York	31.8	19.2	3.03	—	0.39	0.05	0.06	0.35	0.27	1.93	0.60	197	8.4	72.4	5.9	12.6	0.9					York.
Scarborough	26.2	17.0	1.70	—	—	0.17	—	0.50	0.14	0.89	0.88	162	7.3	67.1	4.9	7.9	—					Scarborough.
Middlesbrough	32.1	18.5	2.23	—	0.11	0.12	0.02	0.75	0.33	0.74	0.66	173	10.7	73.2	5.1	9.9	4.3					Middlesbrough.
Darlington	29.5	15.0	1.01	—	—	0.22	0.02	0.30	0.10	0.37	0.55	127	7.6	69.2	4.7	7.5	5.5					Darlington.
Stockton-on-Tees	25.9	14.6	1.92	—	0.49	0.05	0.11	0.49	0.13	0.65	0.47	148	7.8	64.6	5.9	9.0	1.2					Stockton-on-Tees.
West Hartlepool	33.4	15.3	2.44	—	0.57	0.09	0.04	0.38	0.20	0.76	0.50	143	8.0	71.8	6.4	8.0	1.5					West Hartlepool.
South Shields	33.7	16.3	1.66	—	0.27	0.15	0.08	0.35	0.15	0.76	0.57	152	8.5	68.1	7.7	7.6	1.5					South Shields.
Jarrow	29.9	14.5	1.21	—	0.45	0.02	0.07	0.20	0.12	0.65	0.67	147	8.5	59.7	8.9	7.2	1.9					Jarrow.
Tynemouth	31.3	19.4	2.04	—	0.27	—	0.10	0.50	0.19	0.98	0.68	165	10.5	70.8	6.5	9.2	0.7					Tynemouth.
Carlisle	32.8	19.5	1.22	—	—	0.20	0.22	0.49	0.07	0.24	0.64	128	10.8	77.7	11.3	13.3	2.9					Carlisle.
Newport	32.4	15.9	1.72	—	0.19	0.07	0.10	0.15	0.18	0.43	0.85	166	7.9	69.6	10.7	11.7	0.6					Newport.
Rhondda†	35.7	17.3	2.40	—	1.15	0.16	0.62	0.47	0.23	0.97	0.87	196	8.8	58.7	6.3	1.9	1.3					Rhondda†.
Merthyr Tydfil	37.3	24.5	3.83	—	1.43	0.23	0.62	0.44	0.23	0.82	1.17	209	14.0	66.8	5.3	7.0	0.6					Merthyr Tydfil.
Aberdare	38.7	22.4	4.13	—	1.73	0.22	0.82	0.07	0.19	1.10	0.79	213	11.3	68.1	5.3	2.0	0.1					Aberdare.

* See note (f) to Table 1. † Formerly named Ystradyfodwg.

TABLE 7.—Births and Deaths in 1897 (52 Weeks) in Edinburgh, Glasgow, and Dublin, and in certain Colonial and Foreign Cities.

CITIES.	POPULATION (enumerated or estimated).	BIRTHS. (Excluding Stillborn.)	DEATHS.	ANNUAL RATE per 1000 Persons living.		DEATHS FROM SOME ZYMOTIC DISEASES							
				Births.	Deaths.	Small-pox.	Measles.	Scarlet Fever.	Diphthe- ria.	Whooping- cough.	Fever.	Diarrheal Diseases.	
EDINBURGH	292,364	7977	6206	27·4	21·3	—	333	110	53	238	34	181	
GLASGOW	714,919	23850	15656	33·5	22·0	6	561	132	96	850	179	751	
DUBLIN	349,594	10221	10117	29·3	29·0	2	474	134	75	392	203	341	
CALCUTTA	466,460	—	15012	—	32·3	82	48	—	4	20	5939	2981	
BOMBAY	821,764	9347	47088	11·4	57·5	58	348	?	?	?	18395†	4641	
MADRAS	452,518	18907	16035	41·9	35·5	108	410	?	?	?	5464†	2161	
PARIS	2,511,629	59355	46704	23·7	18·6	12	823	61	297*	265	241	2916	
BRUSSELS (with Fau- bourgs).	531,024	13393	8774	25·3	16·6	2	63	21	38*	54	98	977	
AMSTERDAM	500,091	15186	7832	30·6	15·8	—	12	10	123	114	34	141	
ROTTERDAM	290,004	10424	5083	36·0	17·6	1	19	14	53	62	36	81	
THE HAGUE	191,529	5797	3021	30·4	15·8	—	1	3	28	36	9	101	
COPENHAGEN	340,500	9914	5954	29·2	17·5	—	47	20	62	43	21	478	
STOCKHOLM	274,611	6935	4587	25·3	16·7	—	27	67	41*	10	20	421	
CHRISTIANIA	192,141	1795	3120	9·4	16·3	—	6	9	17	42	29	438	
ST. PETERSBURG (without Faubourgs).	954,400	32168	27576	33·8	29·0	119	812	675	1691	82	956	3150	
MOSCOW	988,610	—	28250	—	28·7	32	511	748	654	102	348	5961	
BERLIN	1,726,098	46544	30376	27·1	17·7	8	302	221	499	426	70	4181	
HAMBURG	661,015	21349	11056	32·4	16·8	—	5	21	112*	54	46	1141	
DRESDEN	347,485	11991	7073	34·6	20·4	2	18	52	112*	63	12	981	
BRESLAU	385,198	13404	9411	34·9	24·5	—	29	54	98*	79	43	1601	
MUNICH	430,000	15165	10430	35·4	24·3	—	162	29	183*	79	23	2121	
VIENNA	1,574,129	46013	32807	29·3	20·9	—	835	246	567*	96	84	3381	
PRAGUE	377,109	11292	8954	30·0	23·8	—	141	149	102	88	135	2211	
BUDA-PESTH	629,486	22627	13777	36·0	21·9	2	173	128	113	82	121	1431	
TRIESTE	164,491	5172	4194	31·5	25·6	11	50	55	113*	3	42	396	
ROME	483,560	11485	8140	23·8	16·9	1	101	4	19	29	160§	704	
TURIN	344,203	7277	5850	21·1	17·0	—	61	2	44	30	67	361	
VENICE	166,069	4217	3363	25·5	20·3	—	—	2	40*	14	53	278	
CAIRO	570,062	21231	18449	37·2	32·4	111	117	—	211*	71	313	3858	
ALEXANDRIA	319,766	11492	10162	35·9	31·8	67	178	4	81*	35	189	2531	
NEW YORK	2,003,000	—	38798	—	19·4	24	391	499	1372	308	299	2513	
BROOKLYN	1,160,000	—	20675	—	17·9	3	191	187	795	164	174	1528	
BOSTON	528,912	17305	11154	32·7	21·1	—	21	136	411	88	173	522	
PHILADELPHIA	1,214,256	—	22736	—	18·8	—	64	282	1474	270	395	1031	
CINCINNATI	405,000	6667	5565	17·0	13·7	—	18	16	102	34	131	61	
ST. LOUIS	600,000	10630	9554	17·7	15·9	3	1	19	240*	57	172	566	
NEW ORLEANS	275,000	—	6730	—	24·5	—	1	5	37	2	645¶	149	
SAN FRANCISCO	360,000	—	6153	—	17·1	—	12	7	82	13	58	171	

* Including deaths from croup.

† Including 1543 deaths from cholera in Calcutta, 1278 in Bombay, 169 in Madras.

‡ Including 10146 deaths from bubonic fever in Bombay and 3 from "Plague" in Madras.

§ Including 72 deaths from malarial fever.

¶ Including 298 deaths from yellow fever, and 206 deaths from malarial fever.

TABLE 8.—LONDON.—Numbers of Natives and Immigrants respectively, living in LONDON, in 1881 and 1891.

	MALES.		FEMALES.		EXCESS OF FEMALES.	
	1881.*	1891.	1881.*	1891.	1881.*	1891.
TOTAL INHABITANTS	1,797,043	1,990,748	2,018,501	2,220,995	221,458	230,247
BORN IN LONDON	1,146,935	1,323,480	1,254,756	1,435,915	107,821	112,435
BORN OUT OF LONDON	650,108	667,268	763,745	785,080	113,637	117,812

* The figures for 1881 relate to Registration London as constituted in 1891.

TABLE 9.—GREATER LONDON (THE METROPOLITAN AND CITY POLICE DISTRICTS).—Area, Population, Inhabited Houses, and Ratable Value.

	AREA.		Enumerated POPULATION, 1891.	DENSITY of POPU- LATION in 1891.		INHABITED HOUSES, 1891.	RATABLE VALUE * 1891.
	In Acres.	In Square Miles.		Persons to an Acre.	Persons to a Square Mile.		
GREATER LONDON	443,421	693	5,633,806	12·7	8,130	789,408	£ 40,913,457
REGISTRATION LONDON ..	74,672	117	4,211,743	56·4	35,998	544,977	32,932,967
OUTER RING	368,749	576	1,422,063	3·9	2,469	244,431	7,980,490

* Supplied from the London County Council and Metropolitan Police Offices.

TABLE 10.—GREATER LONDON (THE METROPOLITAN AND CITY POLICE DISTRICTS).—Population; and Births and Deaths in the 52 Weeks of 1897.

	POPULATION, estimated to the middle of 1897.	ANNUAL RATE per 1000 living.			TOTAL BIRTHS.	TOTAL DEATHS.	The DEATHS registered in the 52 Weeks include										
		Births.	Deaths.	Principal Zymotic Diseases.			Deaths of		Deaths from								Deaths in Public Institutions.
							Infants under 1 Year of Age.	Persons aged 60 Years and upwards.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping- cough.	Fever.	Diarrhoea.		
GREATER LONDON }	6,291,677	26·3	16·7	2·46	184,151	105,028	28,594	24,226	16	2456	950	2886	2403	789	5910	26,021	
REGISTRATION LONDON* }	4,463,169	30·0	18·2	2·58	133,618	80,943	21,273	19,138	16	1929	780	2261	1842	593	4104	23,553	
OUTER RING	1,828,508	27·7	13·2	2·13	50,533	24,085	7321	6088	—	527	170	625	561	196	1806	2468	

* See note (f) to Table 1.

TABLE 11.—London.—Mortality in Five Groups of Districts (not corrected for Deaths in Institutions), and Meteorology at Greenwich, 1851-1897.

	LONDON.	GROUPS OF DISTRICTS.					METEOROLOGY AT GREENWICH.			
		WEST.	NORTH.	CENTRAL.	EAST.	SOUTH.	Mean Temperature of Air.	Degree of Humidity, Saturation = 100.	Rainfall, in Inches.	Mean Hourly Horizontal Movement of the Air.*
Area in Square Miles ..	116·7	16·2	21·1	3·3	8·6	67·5				
Average Annual Rate of Increase of Population per Cent. 1891-96..	0·932	0·993	0·925	-1·149 (decrease).	0·316	1·506				
Enumerated Population, 1896 ..	4,411,710	778,251	1,040,694	233,635	716,334	1,642,796				
Density : Persons to an Acre	1851 30 1861 36 1871 42 1881 49 1891 56 1896 59	35 44 52 62 71 75	36 46 56 67 74 77	203 175 150 127 116 110	78 92 107 116 128 130	14 17 21 23 35 38				
YEARS.	ANNUAL RATE OF MORTALITY PER 1000.						METEOROLOGY IN EACH YEAR.			
1851 ..	23·4	22·0	22·2	24·1	24·3	24·0	49·2	78	21·6	10·3
1852 ..	22·5	21·5	21·2	23·9	23·3	23·0	50·6	76	34·2	10·6
1853 ..	24·4	22·3	22·4	25·1	26·5	25·3	47·7	79	29·0	9·5
1854 ..	29·4	28·5	24·4	27·4	30·0	34·8	48·9	83	18·7	10·3
1855 ..	24·3	23·0	23·3	25·1	25·5	24·6	47·1	83	21·1	9·9
1856 ..	22·0	21·5	21·1	23·0	23·3	21·8	49·0	83	22·2	10·6
1857 ..	22·4	21·2	21·5	23·8	24·6	21·5	51·0	83	21·4	9·3
1858 ..	23·9	22·4	22·9	24·5	25·8	24·0	49·2	79	17·8	9·7
1859 ..	22·7	21·4	21·7	24·1	24·0	22·6	50·7	80	25·9	9·5
1860 ..	22·4	22·2	21·2	23·3	24·1	22·1	47·0	84	32·0	10·0
1861 ..	23·2	22·1	22·3	25·4	24·0	22·8	49·4	84	20·8	9·9
1862 ..	23·6	22·0	22·0	26·2	26·0	22·7	49·5	84	26·2	10·0
1863 ..	24·5	22·9	23·8	26·9	26·5	23·3	50·3	80	20·0	10·3
1864 ..	24·4	24·4	25·3	29·5	29·0	25·3	48·5	78	16·7	9·5
1865 ..	24·5	22·6	24·5	27·1	26·5	23·2	50·3	80	29·0	9·3
1866 ..	26·5	22·6	25·3	27·1	34·0	24·1	49·8	82	30·7	11·4
1867 ..	23·0	21·7	23·1	24·8	24·2	22·1	48·6	82	28·4	11·8
1868 ..	23·5	22·2	22·7	25·2	25·4	22·9	51·5	78	25·2	12·2
1869 ..	24·6	22·2	23·5	26·6	27·9	23·8	49·5	81	24·0	12·2
1870 ..	24·1	23·8	23·5	26·0	25·0	23·4	48·7	79	18·5	11·1
1871 ..	24·6	22·5	25·6	25·0	26·1	24·0	48·7	81	22·3	10·5
1872 ..	21·5	19·6	21·2	23·6	23·6	20·7	50·7	82	30·0	11·9
1873 ..	22·4	20·5	21·2	25·1	25·3	21·7	48·9	82	23·4	11·8
1874 ..	22·4	20·9	21·7	25·7	25·5	21·0	49·3	82	20·0	11·5
1875 ..	23·6	22·2	22·2	26·2	25·7	23·3	50·1	80	28·2	11·5
1876 ..	21·9	21·0	21·2	24·1	24·0	21·2	50·1	80	24·2	12·1
1877 ..	21·6	19·2	21·5	24·2	24·5	20·5	49·4	79	26·9	13·0
1878 ..	23·1	21·6	22·0	25·2	25·1	23·0	49·6	81	29·2	11·1
1879 ..	22·6	20·9	21·5	26·3	25·5	21·8	46·2	83	31·3	11·3
1880 ..	21·7	19·8	20·8	23·8	24·3	21·3	49·4	84	29·8	11·7
1881 ..	21·3	19·6	20·7	23·4	24·3	20·5	48·7	81	25·2	12·1
1882 ..	21·5	20·0	20·8	24·0	25·3	20·8	49·7	84	25·2	12·8
1883 ..	20·8	19·8	19·4	23·3	24·4	19·8	49·4	82	21·9	12·1
1884 ..	20·9	19·7	19·6	23·8	23·4	20·2	50·7	80	18·1	11·9
1885 ..	20·4	19·9	19·3	22·9	23·0	19·1	48·6	81	24·0	12·0
1886 ..	20·6	19·8	18·9	23·4	23·9	19·9	48·7	81	24·2	11·8
1887 ..	20·3	19·9	18·9	23·5	23·3	19·4	47·8	79	19·9	11·5
1888 ..	19·3	19·3	17·7	22·7	22·7	18·1	47·7	82	27·5	12·3
1889 ..	18·4	18·1	16·9	20·9	21·2	17·7	48·8	83	23·3	10·2
1890 ..	21·4	20·5	19·6	24·8	25·1	19·6	48·6	81	21·9	11·2
1891 ..	21·5	20·8	20·1	26·4	24·1	19·8	48·4	82	25·1	11·7
1892 ..	20·7	20·1	19·5	24·0	23·5	19·1	48·1	80	22·3	11·0
1893 ..	21·3	19·6	20·1	25·6	24·8	19·5	51·1	76	20·1	11·2
1894 ..	17·8	17·1	16·4	20·2	20·9	16·3	49·9	81	26·9	12·4
1895 ..	19·9	18·5	18·2	23·8	23·4	18·3	49·3	78	19·7	11·6
1896 ..	18·6	17·7	17·2	21·3	21·4	17·5	50·1	79	22·4	11·4
1897 ..	18·2	17·1	16·9	21·9	21·2	16·8	50·3	79	22·1	12·2

NOTE.—The populations upon which these rates of mortality have been calculated are deduced from the numbers enumerated at the six Censuses of 1851, 1861, 1871, 1881, 1891, and 1896. The deaths for the 46 years 1851-96 are for the calendar years, while those for 1897 are the numbers registered in the 52 weeks ending 1st of January 1898.

The hamlet of Mottingham was transferred from Lewisham District to the Outer Ring on 1st April 1887. Certain changes affecting the West and Central groups of districts were made in the year 1868, but no corrections in these changes have been made in this Table for any year prior to 1861.

* Approximated to the results of Robinson's anemometer by reduction from Whewell's, up to 1859.

TABLE 12.—LONDON : Population at different Ages, as enumerated in 1851, 1861, 1871, 1881, and 1891, with the Numbers of Males and Females at various Ages in 1891.

—	ALL AGES.	0—	5—	10—	15—	20—	25—	35—	45—	55—	65—	75—	85 and upwds.
1851	2,362,236	293,562	243,648	216,369	213,694	241,401	428,123	308,949	208,363	122,946	62,608	19,845	2,728
1861	2,803,989	362,296	300,259	264,349	259,155	277,389	476,802	366,417	246,918	149,503	74,039	23,721	3,141
1871	3,254,260	422,629	349,686	309,658	307,075	321,585	551,973	404,954	290,977	174,265	90,198	27,604	3,656
1881	3,816,483	497,044	419,740	366,111	368,628	385,236	641,265	471,131	320,530	205,921	103,815	32,982	4,080
1891	4,211,743	501,622	454,160	416,425	416,820	428,454	717,514	519,637	368,536	221,551	122,726	39,172	5,126
Males ..	1,990,748	249,309	225,895	206,228	197,424	194,110	333,689	246,219	173,111	98,776	50,407	14,070	1,510
Females ..	2,220,995	252,313	228,265	210,197	219,396	234,344	383,825	273,418	195,425	122,775	72,319	25,102	3,616

NOTE.—In England and Wales the proportion of Females to Males in the population in 1891 was as 106 to 100; in London it was as 112 to 100. The proportions in 1881 were 105 and 112 respectively. The figures in this table refer to London as constituted in the respective census years.

TABLE 13.—LONDON : Marriages, Births, and Deaths, 1887-1897.

YEARS.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897 (52 weeks).
MARRIAGES.. .. .	34,251	34,635	35,412	36,752	37,341	37,191	37,016	36,924	37,629	39,872	41,223
BIRTHS .. {											
Persons ..	133,359	131,761	132,233	128,161	134,484	132,328	133,062	131,454	134,155	133,833	133,618
Males ..	67,569	66,919	67,398	65,168	68,383	67,443	67,688	66,866	68,281	68,490	68,004
Females ..	65,790	64,842	64,835	62,993	66,101	64,885	65,374	64,588	65,874	65,343	65,614
DEATHS* .. {											
Persons ..	82,443	79,244	76,162	89,268	90,595	88,440	91,552	77,407	87,298	82,390	80,943
Males ..	42,201	40,495	38,947	45,959	46,487	44,851	46,840	39,704	44,343	42,457	42,027
Females ..	40,242	38,749	37,215	43,309	44,108	43,589	44,712	37,703	42,955	39,933	38,916
EXCESS OF BIRTHS OVER DEATHS	50,916	52,517	56,071	38,893	43,889	43,888	41,510	54,047	46,857	51,443	52,675
ANNUAL RATES PER 1000 {											
Persons Married ..	16·9	16·9	17·1	17·6	17·7	17·4	17·2	17·0	17·2	18·0	18·5
Births ..	32·9	32·1	31·9	30·7	31·9	31·0	30·9	30·3	30·6	30·2	30·0
Deaths ..	20·3	19·3	18·4	21·4	21·5	20·7	21·3	17·8	19·9	18·6	18·2

NOTE.—The figures in the above table, except those for 1897, relate to the calendar years ending 31st December. The figures for 1897 relate to the 52 weeks ending 1st January 1898.
* See note † to Table 1.

TABLE 14.—LONDON.—Population, and Zymotic and

PERIOD AND YEAR.	ESTIMATED POPULATION.	DEATHS FROM PRINCIPAL ZYMOTIC DISEASES.									
		Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Typhus.	Enteric Fever.	Simple and ill-defined Fever.	Diarrhoea and Dysentery.	Cholera.
Cols. 1	2	3	4	5	6	7	8	9	10	11	12
Period.				18,314		18,079	20,890			16,926	15,588
1841-50	2,103,487	8,416	13,011	26,317		22,497	22,597			20,362	12,886
1851-60	2,570,489	7,150	13,766	34,391	5,323	26,550	27,149			31,578	7,405
1861-70	3,018,193	8,347	17,338	21,247	4,319	28,728	1,887	8,536	2,579	33,168	1,326
1871-80	3,513,843	15,539	17,947	13,268	10,435	27,686	327	7,502	717	29,922	941
1881-90	4,000,475	5,634	25,449	4184							
1848	2,244,837	1620	1144	4767		1630		3685		2247	652
1849	2,287,302	521	1154	2149		2349		2564		3837	14,128
1850	2,330,054	499	980	1169		1568		2032		2077	127
1851	2,373,081	1062	1297	1285		2185		2374		2755	213
1852	2,416,367	1159	595	2571		1569		2183		2513	162
1853	2,459,899	211	978	2016		2667		2617		2649	885
1854	2,503,622	694	1409	3477		2502		2816		3325	10,738
1855	2,547,639	1039	878	2611		2438		2460		2190	149
1856	2,591,815	531	1479	1819		2092		2717		2414	153
1857	2,636,174	156	1341	1599		2527		2195		3296	212
1858	2,680,700	242	2369	4184		2708		1919		2220	131
1859	2,725,374	1158	1330	3481	773	1742		1840		3513	198
1860	2,770,181	898	2090	2017	484	2067		1476		1485	51
1861	2,815,101	217	1062	2381	674	3548		1848		2740	168
1862	2,860,117	366	2334	3492	730	2168		3673		1839	106
1863	2,905,210	1996	1634	4955	799	2175		2871		2492	158
1864	2,950,361	547	2788	3244	611	2423		3782		3013	156
1865	2,995,551	640	1290	2179	431	2935		3217		3721	196
1866	3,040,761	1391	2220	1892	462	2960		2688		3294	559
1867	3,085,971	1345	1143	1451	447	2278		2184		3060	240
1868	3,131,160	597	1962	2916	495	2338		2468		4110	324
1869	3,176,308	275	1456	5841	340	3769	716	1069	615	3495	218
1870	3,221,394	973	1449	6040	334	1956	472	976	570	3814	238
1871	3,267,251	7912	1427	1902	344	2291	384	871	436	3968	221
1872	3,319,736	1786	1680	918	267	3259	174	807	322	3588	181
1873	3,373,065	113	2149	645	320	2620	277	908	325	3950	163
1874	3,427,250	57	1680	2648	419	1867	312	879	337	3201	123
1875	3,482,306	46	1408	3677	581	3204	128	817	272	3289	108
1876	3,538,246	736	1720	2308	387	2737	159	769	202	3585	136
1877	3,595,085	2551	2387	1580	316	1817	157	901	194	2421	88
1878	3,652,837	1417	1500	1808	566	4483	151	1033	197	3534	124
1879	3,711,517	450	2475	2661	575	2934	71	849	160	1894	53
1880	3,771,139	471	1521	3100	544	3516	74	702	134	3738	133
1881	3,824,980	2367	2536	2114	657	1973	92	971	134	3055	96
1882	3,862,956	430	2338	2006	857	4682	53	975	95	2144	78
1883	3,901,309	136	2441	2006	952	1598	55	963	102	2652	89
1884	3,940,042	1236	2271	1430	951	3156	32	925	78	3903	163
1885	3,979,160	1419	2909	722	904	2481	28	597	78	2723	77
1886	4,018,666	24	2086	690	851	2871	13	618	73	3996	137
1887	4,058,565	9	2904	1443	953	2935	19	612	44	3801	107
1888	4,098,860	9	2425	1214	1311	2993	9	694	35	2206	63
1889	4,139,555	—	2308	785	1617	1787	16	538	42	2692	65
1890	4,180,854	4	3231	858	1332	3210	10	609	36	2750	84
1891	4,221,522	8	1807	598	1435	2872	11	558	44	2435	71
1892	4,260,869	41	3415	1167	1969	2507	11	436	22	2567	87
1893	4,300,580	206	1652	1590	3271	2326	5	692	21	3427	133
1894	4,340,663	88	3295	966	2707	2096	6	640	13	1745	32
1895	4,381,119	55	2692	829	2344	1517	4	628	9	3614	74
1896	4,421,955	9	3662	916	2657	2904	5	576	17	3207	95
1897	4,463,169	16	1929	780	2261	1842	1	584	8	4104	118

For the years 1848-50 the numbers of deaths from the various diseases are derived from
The figures for 1897 are for the

Infant Mortality in 50 Years 1848-97.

ANNUAL MORTALITY, PER MILLION PERSONS LIVING, FROM PRINCIPAL ZYMOTIC DISEASES.											Annual Mortality of Infants under One Year of Age to 1000 Births.	PERIOD AND YEAR.
Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Typhus.	Enteric Fever.	Simple and Ill-defined Fever.	Diarrhoea and Dysentery.	Cholera.				
14	15	16	17	18	19	20	21	22	23	24		
										Period.		
402	623	863		887	979		782	688	157	1841-50		
280	530	1017		877	886		1030	514	155	1851-60		
276	576	1133	179	882	904		1040	243	162	1861-70		
457	510	600	122	815	55	244	75	949	38	1871-80		
145	636	335	259	693	8	189	18	748	23	1881-90		
724	511	2131		729	1647		1004	291	158	1848		
239	506	943		1030	1125		1683	6196	169	1849		
215	422	503		675	875		894	55	140	1850		
448	547	541		921	1000		1161	90	154	1851		
478	246	1061		648	901		1037	87	151	1852		
86	398	820		1084	1064		1077	359	158	1853		
277	563	1389		999	1125		1328	4289	164	1854		
408	345	1025		957	966		860	58	152	1855		
204	569	700		805	1045		929	58	150	1856		
59	509	607		959	833		1251	81	156	1857		
90	884	1561		1010	716		828	49	160	1858		
425	488	1277		639	675		1289	71	150	1859		
323	752	726		744	531		535	18	153	1860		
77	377	846		239	656		973	60	155	1861		
128	816	1221		758	1284		643	37	143	1862		
687	562	1706		749	988		858	55	151	1863		
185	942	1097		819	1278		1018	53	169	1864		
214	431	727		980	1074		1242	65	171	1865		
457	730	622		973	884		1083	1840	172	1866		
436	370	470		738	708		992	78	159	1867		
190	625	929		745	786		1309	103	166	1868		
87	458	1839		1187	225	337	1100	69	170	1869		
302	450	1875		607	147	303	1184	74	164	1870		
2422	437	582		701	118	267	133	1214	68	171	1871	
537	505	276		979	52	242	97	1078	54	158	1872	
34	637	191		777	82	269	96	1171	48	160	1873	
17	490	773		545	91	256	98	934	36	156	1874	
13	404	1056		920	37	235	78	944	31	162	1875	
207	485	651		771	45	217	57	1010	38	157	1876	
710	664	439		505	44	251	54	673	24	146	1877	
388	411	495		1227	41	283	54	967	34	164	1878	
121	667	717		791	19	229	43	510	14	148	1879	
125	402	820		930	20	186	35	989	35	158	1880	
619	663	553		516	24	254	35	799	25	148	1881	
111	605	519		1212	14	252	24	555	20	151	1882	
35	626	514		410	14	247	26	680	21	146	1883	
313	575	362		799	8	234	20	988	41	156	1884	
357	731	181		624	7	150	20	684	19	148	1885	
6	519	172		714	3	154	18	994	34	159	1886	
2	716	356		723	5	151	11	937	26	158	1887	
2	590	295		728	2	169	9	537	13	146	1888	
—	558	190		432	4	130	10	650	15	141	1889	
1	773	206		768	2	146	9	658	20	163	1890	
2	428	142		680	3	132	10	577	17	155	1891	
10	799	273		587	3	102	5	598	20	155	1892	
48	384	370		541	1	161	5	797	31	164	1893	
20	759	223		483	1	147	3	402	7	143	1894	
13	614	189		535	1	143	2	825	17	166	1895	
2	826	207		655	1	130	4	723	21	162	1896	
4	433	175		414	0	129	2	922	26	159	1897	

summaries of 52 or 53 weeks; the numbers for the 46 years 1851-96 relate to calendar years.
52 weeks ending 1st January 1898.

TABLE 15.—Causes of Death REGISTERED in London in each of the 11 Years 1887-1897.

CAUSES OF DEATH.	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	Corrected* Annual Averages, 1887-96.	1897
	364 Days.	364 Days.	364 Days.	371 Days.	364 Days.	364 Days.	364 Days.	364 Days.	364 Days.	371 Days.		364 Days.
ALL CAUSES	82208	78848	75683	91243	90216	87749	91536	77039	86937	83511	88594	80943
Small-pox { Vaccinated	1	5	—	1	2	15	62	24	16	—	13	5
{ Unvaccinated ..	1	—	—	—	3	14	79	43	26	4	18	3
{ No statement ..	7	4	—	3	3	12	65	22	13	5	14	8
Measles	2894	2401	2314	3291	1807	3393	1661	3293	2633	3697	2871	1929
Scarlet Fever	1447	1209	784	876	589	1174	1596	962	829	942	1091	780
Typhus	18	10	15	11	8	11	5	5	5	5	10	1
Relapsing Fever	—	—	1	—	—	1	—	—	—	—	—	2
Influenza	5	3	5	652	2336	2264	1526	750	2156	496	1069	671
Whooping-cough	2928	2987	1749	3276	2876	2477	2330	2097	1483	2937	2636	1842
Diphtheria	961	1301	1588	1417	1361	1885	3265	2670	2316	2683	2039	2261
Simple & Ill-defined Fever ..	48	33	43	33	42	20	21	13	10	13	29	8
Euteric Fever	606	677	538	618	547	436	693	635	614	591	624	584
Cholera and Chol. Diarrhoea ..	106	54	62	83	73	87	133	32	74	95	84	113
Diarrhoea, Dysentery	3773	2176	2677	2753	2437	2546	3446	1780	3600	3223	2979	4101
Remittent Fever	14	9	12	7	4	3	2	2	1	2	6	—
Hydrophobia	2	3	7	2	2	—	1	1	—	4	2	1
Glanders	4	1	2	1	4	—	—	1	—	—	2	—
Cow-pox & effects of Vaccin. ..	9	4	11	7	14	20	15	9	20	7	12	8
Veneral Affections	498	516	544	541	472	502	544	499	501	445	531	454
Erysipelas	341	249	189	250	212	292	424	221	179	207	269	174
Pyæmia Septicæmia	155	152	106	135	105	110	118	96	102	90	123	—
Puerperal Fever	328	275	222	237	222	313	352	210	208	225	272	—
Other Zymotic Diseases	100	76	81	63	73	88	94	70	79	80	84	—
Thrush	80	63	83	77	59	74	43	42	40	32	62	—
Worms & other Parasitical Diseases. }	22	14	14	17	15	15	17	17	21	9	17	—
Starvation, Want of Breast } Milk. }	77	61	92	73	78	115	155	96	95	62	95	—
Alcoholism	248	298	386	475	485	483	533	430	449	540	454	6
Rheumatic Fever, Rheu- } matism of Heart. }	418	397	331	445	384	410	517	352	286	403	413	363
Rheumatism	115	108	131	114	113	117	112	75	80	118	114	93
Gout	157	138	164	169	161	157	187	154	169	149	168	12
Rickets	180	230	230	282	267	287	248	255	339	248	269	26
Cancer	2874	2856	2982	3258	3277	3166	3412	3441	3612	3864	3433	3904
Tabes Mesenterica	1406	1249	1261	1382	1277	1298	1269	954	1253	1066	1303	98
Tubercular Meningitis	1245	1220	1189	1237	1194	1229	1180	1093	1244	1187	1260	120
Phthisis	7740	7459	7748	9074	8485	8036	8179	7543	7974	7778	8390	786
Scrofula, Tuberculosis	912	802	896	950	1035	1012	943	980	1045	1005	1011	924
Other Constitutional Dis. ..	542	546	528	595	640	632	679	627	677	699	646	73
Premature Birth	1975	1938	2025	2249	2349	2394	2517	2361	2514	2534	2396	267
Atelectasis	138	161	127	113	140	158	179	206	209	246	176	28
Congenital Malformations ..	352	345	367	348	394	378	388	405	388	422	397	—
Old Age	2458	2485	2591	2711	2567	2382	2647	2135	2468	2294	2594	2
Apoplexy	2038	2236	2078	2313	2306	2206	2200	1990	2052	2136	2260	221
Epilepsy	345	305	360	443	437	395	404	350	370	367	402	—
Convulsions	2379	2392	2203	2353	2385	2148	2194	1856	2052	1868	2289	16
Other Diseases of Brain and Nervous System. }	4465	4364	4156	5003	4675	4222	4554	3911	4162	4104	4573	38
Diseases of Organs of Special Sense. }	98	116	114	144	134	142	182	162	168	190	152	26
Diseases of Circulatory System. }	6290	6259	6460	7546	7340	7061	7099	6041	6905	6881	7117	6

* The annual averages have been raised for increase of population and adjusted for comparison with the deaths recorded in the 52 weeks of 1897.

† See note (†), Table 1.

TABLE 15 (cont.)—Causes of Deaths REGISTERED in London in each of the 11 Years 1887-1897.

CAUSES OF DEATH.	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	Corrected* Annual Averages, 1887-96.	1897
	364 Days.	364 Days.	364 Days.	371 Days.	364 Days.	364 Days.	364 Days.	364 Days.	364 Days.	371 Days.		364 Days.
Phthisis	597	494	480	491	404	277	217	166	144	147	358	72
Monia	10326	10085	8970	12448	13136	11183	10413	7816	10633	7558	10754	7408
Disorders of Respiratory System.	4797	4657	4061	6224	6915	6164	7198	5321	5989	5537	5962	5053
	323	267	239	329	366	305	402	241	280	251	315	271
	1535	1493	1311	1694	1668	1450	1524	1097	1436	1171	1508	1183
Phthisis	623	603	545	628	520	479	493	417	426	464	545	410
Disorders of Throat	107	102	92	120	92	97	130	81	83	71	102	78
Disorders of Lungs	509	464	570	745	758	776	1106	917	1487	1680	945	2207
Disorders of Liver	338	334	352	372	365	326	393	316	300	284	354	263
Disorders of Digestive System.	1462	1330	1321	1373	1303	1242	1296	1153	1170	1215	1349	1279
	1430	1530	1425	1540	1523	1518	1682	1520	1633	1524	1607	1600
Disorders of Lymphatic System and Ductless Glands.	95	95	108	129	115	87	134	119	108	119	116	98
Disorders of Urinary System	2100	2116	2020	2209	2305	2168	2355	2056	2230	2277	2289	2424
Disorders of Generative System.	297	270	253	315	280	250	303	257	288	280	293	308
Disorders of Childbirth ..	163	169	166	212	286	304	335	266	212	280	251	229
Disorders of Locomotive System.	345	368	375	392	330	331	262	310	253	256	338	244
Disorders of Integumentary System.	273	258	217	293	325	334	333	263	303	286	303	320
ACCIDENT OR NEGLIGENCE.†												
Always					125	110	75	81	84	79		100
Accidents or Horses					244	269	304	255	290	300		334
Drownings, &c. (not drownings)					21	30	22	31	37	28		30
Building operations					42	40	41	33	39	57		41
Flagrations					30	34	26	26	23	47		24
Burns, Scalds, Explosions	2548	2506	2475	2660							2825	
Drowning					285	323	349	325	357	373		319
Location in Bed					298	322	342	311	307	260		324
Poison or poisonous substances					626	621	574	518	631	643		595
For not stated Causes					98	90	104	115	120	100		136
					954	868	1081	929	962	1049		1056
HOMICIDE.†												
For and Manslaughter ..	80	76	79	73	67	67	58	58	72	70	73	66
SUICIDE.†												
.. .. .	398	400	373	351	430	450	448	464	482	426	443	443
EXECUTION.												
.. .. .	2	1	1	4	3	6	1	1	3	7	3	1
OTHER CAUSES	3060	2923	2784	3003	2911	3044	3262	2665	3118	2719	3092	2500

* See note * on preceding page.
 † The evidence at inquests is often insufficient to enable the coroner to certify whether a violent death resulted from accident, murder, manslaughter, or suicide. All such cases are classed under "accident or negligence."
 The deaths from homicide during the year 1897 include one death caused by wounds in battle.

TABLE 16.—Deaths REGISTERED from different Causes in London, in each Quarter of 1897, and in several Groups of Ages during the 52 Weeks of 1897.

CAUSES OF DEATH.	Quarter ending.				Fifty-two Weeks ending January 1st 1898.							
	Apr. 3 (13 wks.)	July 3 (13 wks.)	Oct. 2 (13 wks.)	Jan. 1 1898 (13 wks.)	TOTAL AT ALL AGES.	Under 1 Year.	1 and under 5.	5 and under 20.	20 and under 40.	40 and under 60.	60 and under 80.	80 and up- wards
ALL CAUSES †	20504	17261	21560	21618	80943	21273	10965	4595	9964	15008	15686	3452
Small-pox ‡ { Vaccinated	4	1	—	—	5	—	—	1	2	2	—	—
Unvaccinated	3	—	—	—	3	—	1	2	—	—	—	—
No Statement	5	1	2	—	8	2	3	—	1	2	—	—
Measles	162	298	302	1167	1929	386	1440	96	7	—	—	—
Scarlet Fever	166	151	216	247	780	53	483	216	22	4	2	—
Typhus	—	—	—	1	1	—	—	—	—	—	1	—
Relapsing Fever	1	—	—	1	2	—	—	—	—	2	—	—
Influenza	217	256	56	142	671	35	38	31	117	182	224	44
Whooping-cough	543	471	373	455	1842	789	1003	49	—	—	1	—
Diphtheria	641	428	488	704	2261	137	1360	705	46	6	7	—
Simple and Ill-defined Fever	3	3	1	1	8	—	2	1	2	2	1	—
Enteric Fever	124	82	143	235	584	3	22	155	302	88	14	—
Cholera and Chol. Diarrhœa ..	1	4	107	3	115	61	21	2	10	10	10	1
Diarrhœa, Dysentery	179	195	3510	220	4104	3240	552	16	27	50	170	49
Remittent Fever	—	—	—	—	—	—	—	—	—	—	—	—
Hydrophobia	—	—	—	1	1	—	—	—	1	—	—	—
Glanders	—	—	1	1	2	—	—	—	1	1	—	—
Cow-pox & effects of Vaccin.	1	1	5	1	8	8	—	—	—	—	—	—
Veneral Affections	113	100	144	97	454	284	28	3	46	54	35	4
Erysipelas	45	36	51	52	184	51	5	4	20	55	41	8
Pyæmia, Septicæmia	28	19	25	27	99	26	10	14	22	20	7	—
Puerperal Fever	67	44	42	62	215	—	—	5	203	7	—	—
Other Zymotic Diseases	26	22	15	18	81	20	15	4	18	12	11	1
Thrush	9	6	13	2	30	29	1	—	—	—	—	—
Worms and other Para- sitical Diseases. }	6	3	8	—	17	—	1	1	7	5	3	—
Starvation, Want of Breast- milk. }	18	12	21	11	62	53	5	—	2	2	—	—
Alcoholism	145	159	168	160	632	—	—	—	208	349	74	1
Rheumatic Fever, Rheuma- tism of Heart. }	100	82	84	102	368	4	7	126	124	81	25	1
Rheumatism	26	26	12	31	95	1	—	4	13	20	53	4
Gout	40	32	25	37	134	—	—	—	3	50	70	11
Rickets	59	54	81	66	260	97	156	6	1	—	—	—
Cancer	973	978	1002	955	3998	4	21	35	337	1719	1681	111
Tabes Mesenterica	199	201	394	195	989	619	222	84	35	25	4	—
Tubercular Meningitis	328	331	311	238	1208	384	576	209	31	8	—	—
Phthisis	2086	1849	1842	2087	7864	96	191	576	3547	2862	581	11
Scrofula, Tuberculosis	253	199	256	215	923	229	259	181	147	70	34	3
Other Constitutional Diseases	175	208	176	179	738	22	27	59	133	244	283	20
Premature Birth	674	640	703	661	2678	2677	1	—	—	—	—	—
Atelectasis	66	43	57	68	234	234	—	—	—	—	—	—
Congenital Malformations ..	110	85	103	106	404	368	19	15	2	—	—	—
Old Age	705	559	526	621	2411	—	—	—	—	5	1162	1244
Apoplexy	621	548	456	587	2212	23	13	16	103	712	1138	207
Epilepsy	86	79	80	76	321	9	13	53	89	96	57	4
Convulsions	435	368	465	413	1681	1500	169	10	—	2	—	—
Other Diseases of Brain and Nervous System. }	1066	870	937	954	3827	464	449	206	442	839	1207	220
Diseases of Organs of Special Sense. }	52	53	44	58	207	43	37	71	36	11	8	1
Diseases of Circulatory System	2019	1711	1453	1784	6967	92	52	501	1002	2220	2760	340

† See Note †, Table 1.

‡ Only those cases of small-pox are returned as "Vaccinated" or as "Unvaccinated" which are so certified by registered medical men. When the medical attendant does not certify that the deceased has, or has not, been vaccinated, or when the cause of death is not certified by a registered practitioner, the case is returned under the heading "No Statement."

TABLE 16 (continued).—Deaths REGISTERED from different Causes in London, in each Quarter of 1897, and in several Groups of Ages during the 52 Weeks of 1897.

CAUSES OF DEATH.	Quarter ending				Fifty-two Weeks ending January 1st 1898.							
	Apr. 3 (13 wks.)	July 3 (13 wks.)	Oct. 2 (13 wks.)	Jan. 1 1898. (13 wks.)	TOTAL AT ALL AGES.	Under 1 Year.	1 and under 5.	5 and under 20.	20 and under 40.	40 and under 60.	60 and under 80.	80 and up- wards.
up	28	19	8	17	72	10	56	6	—	—	—	—
onchitis	2436	1382	745	2845	7408	2043	916	50	177	1009	2571	642
umonia	1436	1085	713	1819	5053	1401	1483	203	481	808	593	84
urisy	70	66	69	66	271	22	43	22	64	70	45	5
er Diseases of Respira- ory System. }	394	228	195	366	1183	210	147	43	78	281	363	61
ntition	137	75	116	82	410	260	150	—	—	—	—	—
nsy, Sore Throat	30	15	15	18	78	5	28	20	8	9	6	2
eritis	228	199	1553	227	2207	1528	304	94	90	84	94	13
itonitis	74	58	73	58	263	21	12	47	83	52	44	4
ases of Liver	324	306	330	319	1279	102	8	21	171	585	353	39
er Diseases of Digestive ystem. }	358	380	455	407	1600	382	102	87	221	353	391	64
ases of Lymphatic Sys- m and of Ductless Glands. }	23	22	31	22	98	1	7	15	29	32	12	2
ases of Urinary System ..	622	587	591	624	2424	17	43	79	377	868	924	116
ases of Generative System idents of Childbirth ..	84 52	68 53	84 64	72 60	308 229	6 —	6 —	5 5	129 188	108 36	53 —	1 —
ases of Locomotive System	75	71	48	50	244	21	18	60	44	44	49	8
ases of Integumentary ystem. }	84	60	85	91	320	97	9	9	21	55	100	29
VIOLENT DEATHS. (ACCIDENT.)												
Railways	24	23	27	26	100	—	—	9	48	26	17	—
ehicles or Horses	62	100	93	79	334	4	34	77	53	91	65	10
Ships, Boats, Docks (exclu- e of Drowning).	8	6	11	5	30	—	—	2	13	10	5	—
Building Operations	14	12	10	5	41	—	—	1	15	21	4	—
onflagrations	4	5	4	11	24	1	4	9	6	3	—	1
Burns, Scalds, Explosions ..	106	51	39	123	319	21	168	50	22	29	25	4
Drowning	61	99	108	56	324	10	5	77	119	89	23	1
Suffocation in Bed	175	145	107	168	595	568	17	1	4	4	1	—
Poisons or Poisonous apours.	27	41	34	34	136	4	8	22	37	43	20	2
er or not stated Causes ..	267	268	275	246	1056	197	89	92	161	234	216	67
VIOLENCE OTHER THAN ACCIDENTAL.)												
omicide*	13	14	21	18	66	24	1	6	21	9	5	—
icide	108	136	119	80	443	—	—	20	184	184	54	1
ecution	1	—	—	—	1	—	—	—	1	—	—	—
HER CAUSES	599	479	839	583	2500	2275	105	6	10	54	39	11

etc.—For the population at each group of ages, estimated in the middle of 1897, see Table 25.
The evidence at inquests is often insufficient to enable the coroner to certify whether a violent death resulted from
dent, murder, manslaughter, or suicide. All such cases are classed under "accident or negligence."
The deaths from homicide include one caused by wounds in battle.

TABLE 17.—Deaths REGISTERED in the London Registration Districts, and Mean Temperature and Registered Sunshine at Greenwich, in each of the 11 Years 1887-1897.

REGISTRATION DISTRICTS.	AREA in Acres.*	Persons to an Acre, 1896.	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897
Mean Temperature	—	—	47°·8	47°·7	48°·8	48°·6	48°·4	48°·1	51°·1	49°·9	49°·3	50°·1	50°·1
Registered Sunshine in Hours.	—	—	1401	1068	1156	1255	1222	1277	1454	1052	1225	1016	1541
LONDON.	74,672	59	82,443	79,244	76,162	89,268	90,595	88,440	91,552	77,407	87,298	82,390	80,441
1a. PADDINGTON	1256	99	2023	2152	1925	2276	2347	2311	2280	1925	2260	2068	1941
1b. KENSINGTON	2188	78	3126	3082	2710	3309	3634	3303	3223	2983	3070	3117	3041
2. FULHAM	3987	55	3201	3207	3183	3632	3644	3895	3886	3625	3981	3863	3841
3. CHELSEA	794	122	2188	1997	1981	2064	2232	2173	2127	1735	2013	1881	1741
4. ST. GEO. HANOVER SQUARE.	1940	69	2923	2855	2713	3090	2984	2821	2774	2367	2557	2338	2341
5. WESTMINSTER	216	162	734	634	692	691	642	567	578	467	507	517	541
6. MARYLEBONE	1576	94	2657	2606	2363	2797	2834	2689	2651	2226	2494	2463	2341
7. HAMPSTEAD ..	2248	34	771	778	835	1064	1019	1173	1452	1325	1278	1276	1141
8. PANCRAS	2672	90	5085	4782	4664	5166	5384	5243	5208	4252	4908	4475	4461
9. ISLINGTON	3109	108	5756	5206	5093	5962	6326	5983	6317	5103	5779	5661	5341
10. HACKNEY	3937	63	3847	3823	3613	4399	4417	4509	4757	3827	4484	4029	4241
11. ST. GILES	244	157	870	694	704	821	893	733	710	603	715	573	541
12. STRAND	403	62	912	923	885	910	1052	929	962	821	918	808	741
13. HOLBORN	811	171	3004	2937	2530	3088	3282	2984	3096	2297	2826	2468	2341
14. LONDON CITY	672	47	1364	1308	1177	1380	1295	1191	1388	1058	1133	1109	1041
15. SHOREDITCH..	648	189	3071	2962	2635	3248	3192	2939	3196	2569	2974	2623	2641
16. BETHNAL GREEN.	755	171	2845	2852	2620	2876	3107	2824	3034	2411	2579	2679	2541
17. WHITECHAPEL	379	208	2249	2181	2176	2492	2437	2355	2683	2322	2552	2322	2341
18. ST. GEORGE-IN-THE-EAST.	244	195	1161	1120	1018	1309	1102	1026	1153	952	1095	943	1041
19. STEPNEY.....	465	125	1333	1354	1266	1500	1320	1375	1396	1206	1354	1203	1141
20. MILE END OLD TOWN.	677	164	2129	1987	1948	2263	2070	2250	2166	1960	2205	1960	1841
21. POPLAR	2333	73	3521	3521	3274	3989	3770	3872	3925	3384	3931	3596	3441
22. ST. SAVIOUR SOUTHWARK.	1119	185	4469	3597	3797	4171	4187	3939	4075	3306	3987	3374	3341
23. ST. OLAVE SOUTHWARK.	1506	91	3359	3168	3109	3461	3552	3369	3461	2983	3233	3219	3141
24. LAMBETH	3941	75	5430	5182	5166	5819	6085	5841	6165	5225	5887	5288	5441
25. WANDSWORTH	11454	31	4317	4330	3973	4905	4787	5016	5093	4497	5391	5513	5641
26. CAMBERWELL	4450	57	4140	4187	4193	4624	4876	4984	5024	4307	4953	4786	4541
27. GREENWICH..	3425	51	3117	3017	3065	3320	3498	3482	3692	3080	3373	3376	3141
28. LEWISHAM ..	10793	10	1176	1216	1123	1254	1326	1370	1384	1298	1444	1422	1341
29. WOOLWICH ..	6500	18	1645	1559	1717	1906	2013	1812	1971	1585	1782	1950	1841
METROPOLITAN HOSPITALS AND ASYLUMS OUTSIDE REGISTRATION LONDON†	—	—	20	27	14	1482	1288	1482	1725	1708	1635	1492	1441

NOTE.—This Table is compiled from the Abstracts which appear in the Registrar-General's Annual Reports, except for the year 1897, for which the numbers are derived from the Weekly Returns embracing 52 weeks.

* For area of Greater London see Table 9.

† For the years 1887-89 the figures refer to the Metropolitan Asylum Small-pox and Fever Hospitals only; for years 1890-1897 the London County, and Metropolitan Lunatic and Imbecile Asylums are added.

TABLE 18.—LONDON.—POPULATION; and BIRTHS and DEATHS in REGISTRATION DISTRICTS during the 52 Weeks of 1897.

REGISTRATION DISTRICTS.	Enumerated Population, 1896.	52 in Weeks. Total Births.	52 in Weeks. Total Deaths.	The DEATHS registered in the 52 Weeks include																		
				Deaths of			Deaths from															
				Infants under 1 Year of Age.	Persons aged 15 Years and upwards.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria	Whooping- cough.	Typhus Fever.	Enteric (or Ty- phoid) Fever.	Con- tinued Fever.	Diarrhoea.	Cholera.	Violence.	Inquest Cases,	Deaths in Public Institutions.	Un- certified Causes of Death.			
LONDON	4411710	133618	80943	21273	19138	16	1929	780	2261	1842	1	584	8	4104	115	3469	7522	23553	479			
ST. MARTIN'S DISTRICTS ..	778251	19861	13420	3248	3587	—	176	106	299	235	—	76	4	693	19	563	1169	4276	30			
ST. ANDREW'S DISTRICTS ..	1040694	29623	17696	4289	4475	1	348	186	624	440	—	160	—	746	22	688	1615	4791	17			
CENTRAL DISTRICTS ..	233635	6630	5022	1175	937	2	108	5	84	128	—	55	1	181	8	331	612	1820	16			
ST. MARY'S DISTRICTS ..	716334	26414	15203	4549	3126	—	557	53	282	337	1	91	—	783	20	789	2049	4775	7			
ST. JOHN'S DISTRICTS ..	1642796	51090	28120	8006	6513	2	738	348	967	701	—	196	3	1697	46	1094	2066	6309	499			
METROPOLITAN HOS- PITALS AND ASYLUMS OUTSIDE REGISTRA- TION LONDON.	—	—	1482	6	500	11	2	82	5	1	—	6	—	—	4	—	4	11	1482	—		
WEST DISTRICTS.																						
PADDINGTON ..	124506	3018	1941	477	540	—	2	3	35	45	—	8	1	103	2	106	185	519	2			
KENSINGTON ..	170465	3683	3024	615	973	—	33	3	32	19	—	12	1	124	6	90	233	1142	2			
FULHAM ..	217980	7245	3810	1214	814	—	60	90	179	89	—	23	2	276	7	152	319	843	7			
CHELSEA ..	96646	2549	1777	429	486	—	16	5	18	39	—	11	—	99	3	46	126	607	7			
ST. GEORGE, HAN- OVER SQUARE ..	133556	2606	2423	411	673	—	43	4	34	34	—	22	—	82	1	152	261	1070	7			
WESTMINSTER ..	35098	760	445	102	101	—	22	1	1	9	—	—	—	9	—	17	45	95	8			
NORTH DISTRICTS.																						
MARYLEBONE ..	141188	4135	2214	548	569	—	9	1	23	41	—	14	—	103	3	100	220	510	5			
CHAMPSTEAD ..	75449	1479	1217	193	302	—	10	81	176	26	—	30	—	29	1	33	63	472	1			
PANCRAS ..	240764	7017	4637	1156	1058	—	85	3	64	125	—	36	—	206	5	248	494	1580	6			
BLISINGTON ..	336764	9845	5373	1325	1475	1	98	24	79	134	—	35	—	189	9	172	454	1204	4			
HACKNEY ..	246529	7147	4255	1067	1071	—	146	77	282	114	—	45	—	219	4	135	384	1025	1			
CENTRAL DISTRICTS.																						
ST. GILES ..	38237	981	542	122	152	—	9	—	1	17	—	2	—	13	2	28	56	154	—			
ST. ANDREW'S ..	24916	438	794	107	172	—	1	—	12	8	—	19	—	19	—	71	115	518	1			
HOLBORN ..	138771	4733	2591	850	407	—	85	3	49	91	—	13	—	142	2	86	228	595	7			
LONDON CITY ..	31711	478	1095	96	206	2	13	2	22	12	—	21	1	7	4	146	213	653	8			
EAST DISTRICTS.																						
SHOREDITCH ..	122358	4314	2662	823	637	—	118	6	40	62	—	10	—	196	5	107	328	787	1			
BETHNAL GREEN ..	129162	4818	2551	790	579	—	110	12	39	54	1	11	—	140	3	105	302	658	1			
WHITECHAPEL ..	78676	3150	2364	529	331	—	44	6	51	18	—	31	—	48	5	216	426	1472	3			
ST. GEORGE IN THE EAST ..	47506	2029	1047	357	199	—	69	4	12	25	—	3	—	57	—	34	119	284	1			
STEPNEY ..	58305	1997	1301	498	140	—	55	4	22	34	—	2	—	62	3	67	158	338	1			
MILE END OLD TOWN ..	111060	4257	1822	582	456	—	75	5	37	58	—	14	—	102	1	46	199	325	—			
POPLAR ..	169267	5849	3456	970	784	—	86	16	81	86	—	20	—	178	3	214	517	911	—			
SOUTH DISTRICTS.																						
ST. SAVIOUR, SOUTHWARK ..	206582	7131	3540	1254	518	1	177	10	42	132	—	11	1	289	1	113	279	252	68			
ST. OLAVE, SOUTH- WARK ..	137585	4868	3118	903	555	1	104	13	53	82	—	15	—	192	9	206	315	970	61			
LAMBETH ..	295033	9388	5485	1457	1351	—	134	55	198	140	—	49	—	293	11	243	434	1498	78			
WANDSWORTH ..	352379	10398	5091	1486	1245	—	106	89	297	119	—	18	1	282	8	180	410	832	28			
CAMBERWELL ..	253076	7483	4526	1211	1218	—	140	14	71	118	—	19	—	269	6	111	232	1187	53			
GREENWICH ..	175774	5563	3141	870	775	—	47	81	148	55	—	54	—	180	6	132	207	863	51			
LEWISHAM ..	105873	2658	1358	346	424	—	25	15	38	22	—	9	—	77	2	47	67	274	20			
WOOLWICH ..	116494	3691	1861	489	427	—	5	71	120	33	—	21	1	115	3	62	122	433	50			
METROPOLITAN HOS- PITALS AND ASYLUMS OUTSIDE REGISTRA- TION LONDON.	—	—	1482	6	500	11	2	82	5	1	—	6	—	—	4	—	4	11	1482	—		

TABLE 19. LONDON—POPULATION; and BIRTHS and DEATHS in REGISTRATION SUB-DISTRICTS during the 52 Weeks of 1897.

REGISTRATION SUB-DISTRICTS.	Enumerated Population, 1886.	Total Births in 52 Weeks.	Total Deaths in 52 Weeks.	The DEATHS registered in the 52 Weeks include																Deaths in Public Institutions.	Uncertified Causes of
				Deaths of	Deaths from										Violence.	Inquest Cases.					
					Infants under 1 Year of Age.	Persons aged 60 Years and upwards.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Typhus Fever.	Enteric (or Typhoid) Fever.	Simple Continued Fever.			Diarrhoea.	Cholera.			
WEST DISTRICTS.																					
St. Mary Paddington G. & W. WHH.	90996	2594	1375	424	372	—	2	2	25	38	—	4	1	92	2	37	97	256	—		
St. John Paddington H .. G.	33510	424	566	53	168	—	—	1	10	7	—	4	—	11	—	69	88	263	—		
Kensington Town Ww .. W.	122164	3133	2475	546	808	—	32	3	28	15	—	9	1	115	6	64	185	988	—		
Brompton HH .. W. & C.	48301	550	549	69	165	—	1	—	4	4	—	3	—	9	—	26	48	154	—		
St. Peter Hammersmith .. W.	9097	220	120	37	37	—	—	—	1	3	—	1	—	10	—	1	6	—	—		
St. Paul Hammer-smith HH.	95102	2919	1450	471	342	—	4	2	23	25	—	6	1	108	6	87	143	164	—		
Fulham Ww. .. W. & C.	113781	4106	2240	706	435	—	56	88	155	61	—	16	1	158	1	64	170	679	—		
Chelsea Kensal Town .. C.	21450	647	290	118	61	—	1	4	3	16	—	2	—	42	3	6	25	—	—		
Chelsea North WHHHH	42057	1160	965	162	281	—	8	1	5	15	—	6	—	36	—	21	52	504	—		
Chelsea South HH .. C.	33139	742	522	149	144	—	7	—	10	8	—	3	—	21	—	19	49	103	—		
May Fair W .. G.	23827	218	543	26	273	—	3	—	1	2	—	—	—	7	—	22	39	381	—		
Belgrave WHHH .. C.	56140	1151	1034	181	245	—	16	—	20	17	—	18	—	27	—	75	112	449	—		
St. John Westminster HH C.	31492	921	431	131	74	—	19	3	4	15	—	1	—	35	1	17	54	15	—		
St. Margaret Westminster H C.	22097	316	415	73	81	—	5	1	9	—	—	3	—	13	—	38	56	225	—		
St. James Westminster N. & G. WHH.	23050	459	309	71	80	—	12	—	—	6	—	—	—	8	—	15	37	64	—		
St. Anne Soho HHHHHH N.	12048	301	136	31	21	—	10	1	1	3	—	—	—	1	—	2	8	31	—		
NORTH DISTRICTS.																					
All Souls Marylebone .. W. HHHHHHHHH.	36595	659	807	116	190	—	6	—	7	10	—	13	—	25	—	48	83	400	—		
Rectory Marylebone W G. & W.	19798	421	250	48	89	—	1	—	3	6	—	—	—	10	—	10	28	63	—		
St. Mary Marylebone G. & W. HHHH.	19637	1481	291	89	80	—	—	—	3	5	—	—	—	16	1	6	21	41	—		
Christchurch Maryle-bone H.	32547	751	399	141	93	—	—	—	2	4	—	1	—	29	1	20	45	—	—		
St. John Marylebone HHH W.	32611	823	467	154	117	—	2	1	8	16	—	—	—	23	1	16	43	6	—		
Hampstead .. N. & W. WcHHHHH.	75449	1479	1217	193	302	—	10	81	176	26	—	30	—	29	1	33	63	472	—		
Regent's Park Pancras HH W.	37341	992	489	147	88	—	4	—	4	17	—	3	—	26	2	20	55	45	—		
Tottenham-court .. N. & W. wHHHH.	26757	630	757	128	134	—	4	—	17	19	—	9	—	15	—	46	74	473	—		
Gray's Inn Lane HHH .. N.	29426	889	629	160	112	—	11	—	11	9	—	8	—	22	—	59	90	198	—		
Somers Town HH .. N.	32161	1030	597	199	88	—	26	1	7	21	—	5	—	41	—	38	87	135	—		
Camden Town WH .. N.	16669	628	619	112	281	—	6	—	3	21	—	7	—	22	—	37	78	400	—		
Kentish Town WW .. N.	98410	2848	1546	410	355	—	34	2	22	38	—	4	—	80	3	48	110	329	—		
Upper Holloway .. N. WWWwHH.	98273	2904	2320	400	732	1	44	5	34	30	—	18	—	32	1	77	167	1168	—		
Islington South-west H .. N.	107365	3292	1414	463	292	—	25	14	20	47	—	7	—	75	3	47	135	13	—		
Islington South-east .. N.	66549	1992	897	258	226	—	16	2	13	31	—	4	—	40	3	31	88	—	—		
Highbury HH .. N.	64577	1657	739	204	222	—	13	3	12	26	—	6	—	42	2	17	64	20	3		
Islington Workhouse, Edmonton.	—	—	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Stoke Newington H .. N.	33485	835	433	95	147	—	7	1	15	15	—	8	—	18	1	8	29	1	—		
North Hackney* .. E. & N.	213044	6312	3822	972	924	—	139	76	267	99	—	37	—	201	3	127	355	1024	—		
Central Hackney* ww E & N.																					
South-west Hackney* E & N. HHH.																					
South-east Hackney* E. & N. WwH																					

NOTE.—The Italic letters placed against the names of the sub-districts denote Public Institutions situated therein. namely: W—Workhouse; H—Hospital; L—Lunatic Asylum; L²—Private Lunatic Asylum in which paupers are received; w—Workhouse Establishment receiving inmates from other Districts than that in which it stands. The Roman capitals signify the Water Companies which supply the different sub-districts; G. signifies Grand Junction Company; W. West Middlesex; C. Chelsea; S. Southwark and Vauxhall; L. Lambeth; N. New River; E. East London; and K. the Kent Company.

* On 1st October 1897 the boundaries of the four sub-districts of Stamford Hill, West Hackney, Hackney, and South Hackney were rearranged and the sub-districts were renamed, as above.

TABLE 19 (continued). LONDON.—POPULATION; and BIRTHS and DEATHS in REGISTRATION SUB-DISTRICTS during the 52 Weeks of 1897.

REGISTRATION. SUB-DISTRICTS.		Enumerated Population, 1896.	Total Births in 52 Weeks.	Total Deaths in 52 Weeks.	The DEATHS registered in the 52 Weeks include															Inquest Cases.	Deaths in Public Institu- tions.	Uncertified Causes of Death.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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					Infants under 1 Year of Age.	Persons aged 60 Years and upwards.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Typhus Fever.	Enteric (or Typhoid) Fever.	Simple Fever.	Diarrhoea.	Cholera.	Violence.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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1st November 1897 the sub-districts of St. Andrew Eastern and St. George the Martyr were united and called Holborn.
1st April 1897 the sub-district of Pentonville was united to that of Amwell.

TABLE 19 (continued). LONDON.—POPULATION; and BIRTHS and DEATHS in REGISTRATION SUB-DISTRICTS during the 52 Weeks of 1897.

The DEATHS registered in the 52 Weeks include																								
REGISTRATION SUB-DISTRICTS.			Enumerated Population, 1896.	Total BIRTHS in 52 Weeks.	Total DEATHS in 52 Weeks.	Deaths of														Deaths in Public Institutions				
						Deaths from																		
						Infants under 1 Year of Age.	Persons aged 60 Years and upwards.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Typhus Fever.	Euteric (or Typhoid) Fever.	Simple Continued Fever.	Diarrhoea.	Cholera.	Violence.	Inquest Cases.					
SOUTH DISTRICTS.																								
Christchurch South- wark WH	L. & S.	13064	357	234	64	57	—	15	2	4	5	—	1	—	12	—	10	21	12					
St. Saviour Southwark	S	12301	412	192	66	26	—	17	—	2	7	—	—	—	9	—	17	21	—					
Kent-road	S. & L.	22879	847	431	158	53	—	30	2	—	11	—	2	—	43	—	15	40	—					
Borough-road WH	S. & L.	16183	598	447	152	37	—	19	1	10	26	—	—	—	40	—	11	40	173					
London-road HL	L. & S.	21316	669	341	120	49	1	14	—	3	10	—	1	1	31	—	12	34	22					
Trinity Newington	S. & L.	28723	975	393	156	61	—	15	3	1	7	—	—	1	40	—	7	18	—					
St. Peter Walworth W	S. & L.	62045	2161	1033	367	160	—	50	2	18	46	—	5	—	84	—	28	75	45					
St. Mary Newington	L. & S.	30171	1112	469	171	75	—	17	—	4	20	—	1	—	30	1	13	30	—					
St. Olave WH	S.	11731	434	808	134	115	—	8	1	13	7	—	9	—	27	1	121	161	607					
Leather Market W	S. & L.	32339	1332	627	261	100	—	35	1	15	25	—	2	—	54	—	24	49	50					
St. James Bermondsey	S.	53136	1844	784	298	121	—	38	4	11	33	—	—	—	60	7	28	49	—					
Rotherhithe WWH	S. & K.	40379	1258	899	210	219	1	23	7	14	17	—	2	—	51	1	33	56	313					
Waterloo-road* HH	L. & S.	28396	1397	486	203	56	—	14	—	6	19	—	3	—	35	—	25	50	57					
Lambeth Church 1st H	L. & S.	18770	597	905	188	95	—	19	1	40	20	—	9	—	37	3	119	148	598					
Lambeth Church 2nd W W.	L. & S.	40994	1595	1281	300	407	—	46	1	5	51	—	3	—	64	3	34	77	639					
Kennington 1st H	S. & L.	52486	1859	791	249	213	—	13	2	12	25	—	3	—	60	2	35	75	16					
Kennington 2nd	S. & L.	43244	1110	502	132	175	—	17	2	7	7	—	—	—	24	1	6	23	—					
Brixton w	L. & S.	81825	2131	1184	285	298	—	24	49	123	11	—	30	—	40	2	22	54	181					
Norwood WH	L.	29318	699	336	100	107	—	1	—	5	7	—	1	—	33	—	2	7	7					
East Battersea	S.	71730	2431	969	378	129	—	24	4	32	36	—	3	—	60	1	43	120	—					
West Battersea WWH	S.	93385	2835	1651	467	459	—	52	3	20	46	—	5	—	78	2	75	153	459					
Clapham H	S.	48953	1164	605	163	175	—	16	1	6	5	—	3	—	34	1	13	33	34					
Wandsworth WHHL	S.	58101	1822	710	234	183	—	4	5	32	12	—	3	1	48	3	24	56	33					
Putney	S.	20566	510	237	63	71	—	—	—	4	9	—	1	—	21	—	6	9	—					
Streatham WWWW	L.	61644	1546	919	181	228	—	10	76	203	11	—	3	—	41	1	19	39	306					
Dulwich	L. & S.	7519	89	58	4	30	—	—	—	1	2	—	1	—	1	—	—	2	—					
Camberwell WWL* S. & L.	S. & L.	90286	2395	2209	401	761	—	52	6	18	37	—	9	—	79	1	44	97	1183					
Peckham WW	S. L. & K.	88242	2789	1292	433	292	—	26	4	30	41	—	5	—	119	4	27	63	4					
St. George Camberwell	L. & S.	67029	2210	967	363	135	—	62	4	22	38	—	4	—	70	1	40	70	—					
Deptford North	K.	36152	1369	567	229	91	—	5	4	8	14	—	3	—	46	5	31	58	—					
Deptford Central w	K.	45441	1607	867	278	104	—	29	75	123	15	—	39	—	60	1	19	37	262					
Deptford South	K.	33402	712	368	80	142	—	2	—	12	6	—	5	—	16	—	10	10	—					
Greenwich West H	K.	23012	723	344	106	91	—	7	—	3	8	—	1	—	27	—	15	29	16					
Greenwich East WH	K.	37767	1152	995	177	347	—	4	2	2	12	—	6	—	31	—	61	73	585					
Eltham wH	K.	5911	124	76	16	32	—	6	—	3	—	—	—	—	3	—	6	7	7					
Lee H	K.	24222	476	239	60	80	—	—	—	2	4	—	3	—	19	—	10	12	13					
Lewisham WWH	K.	38139	1131	617	165	187	—	10	14	15	9	—	1	—	40	2	22	36	239					
Sydenham H	L.	37601	927	426	105	125	—	9	1	18	9	—	5	—	15	—	9	12	15					
Charlton WHH	K.	15928	409	401	55	65	—	3	67	87	3	—	19	—	5	—	7	10	214					
Woolwich Dockyard	K.	19355	545	239	87	45	—	1	1	6	2	—	—	—	15	—	6	17	—					
Woolwich Arsenal HHHH	K.	21959	762	332	118	67	—	2	2	13	5	—	1	—	30	—	17	44	15					
Plumstead West H	K.	16714	469	186	45	56	—	1	—	3	7	—	—	—	13	—	2	7	—					
Plumstead East WH	K.	42538	1506	703	184	194	—	—	1	11	16	—	1	1	52	3	30	44	204					
Banstead Asylum	—	—	—	214	—	80	—	—	—	—	—	—	—	—	—	—	1	1	214					
Caterham Asylum	—	—	—	138	—	80	—	—	—	—	—	—	—	—	—	—	1	1	138					
Cane Hill Asylum	—	—	—	148	—	44	—	—	—	—	—	—	—	—	—	—	1	1	148					
Hospital Ships and Camp Dartford.	—	—	—	22	—	—	11	2	2	4	1	—	—	—	—	—	—	—	22					
Darenth Asylum	—	—	—	74	—	15	—	—	—	—	—	—	—	—	—	—	—	—	74					
Hanwell Asylum	—	—	—	143	—	49	—	—	—	—	—	—	3	—	—	—	—	—	143					
Colney Hatch Asylum	—	—	—	230	—	81	—	—	—	—	—	—	—	—	—	—	2	—	230					
N. E. Hospital	—	—	—	77	6	—	—	—	70	—	—	—	—	—	—	—	—	—	77					
Winchmore Hill Hospital	—	—	—	11	—	—	—	—	—	1	—	—	—	—	—	—	—	—	11					
Leavesden Asylum	—	—	—	179	—	80	—	—	10	—	—	—	—	—	—	—	2	—	179					
Claybury Asylum.	—	—	—	246	—	71	—	—	—	—	—	—	3	—	3	—	2	—	246					

* On 1st January 1897 the sub-districts of Waterloo-road first and Waterloo-road second were united and called Waterloo-road.

Outer Ring : Births and Deaths in Registration Sub-Districts.

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TABLE 20.—LONDON.—OUTER RING (excluding DEATHS of LONDONERS in METROPOLITAN WORKHOUSES, HOSPITALS, and ASYLUMS).—AREA; POPULATION; BIRTHS and DEATHS registered during the 52 Weeks of 1897.

REGISTRATION SUB-DISTRICTS.		Area in Acres.	Enumerated Population, 1891.	BIRTHS.	DEATHS.	The DEATHS registered in the 52 Weeks include															
						Deaths of 1 Year of Age.	Persons aged 60 Years & upwards.	Deaths from										Violence.	Inquest Cases.	Deaths in Public Institutions.	Uncertified Causes of Death.
								Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Fever.	Diarrhoea.	Cholera.						
LONDON—OUTER RING ..		368749	1422063	50533	24085	7321	6088	—	527	170	625	561	196	1806	118	785	1384	2468	489		
1	Carshalton <i>WHH</i> ..	12228	26108	622	311	87	88	—	—	—	5	7	3	34	—	5	19	4	4		
2	Epsom, <i>part of</i> <i>W</i> <i>WH</i> ..	10423	12508	288	188	42	82	—	—	2	1	—	—	7	—	4	11	63	8		
1	Godstone, <i>part of</i> <i>W</i> ..	2754	1598	55	27	6	10	—	—	—	—	—	—	—	—	—	1	2	2		
1	Croydon <i>WHHH</i> ..	20851	128699	3644	1895	475	617	—	23	12	13	44	12	106	1	66	153	318	3		
2	Mitcham <i>W</i> ..	11697	23088	684	275	73	77	—	5	5	4	8	2	24	3	5	16	2	3		
1	Wimbledon <i>HHH</i> ..	3220	25761	825	365	98	93	—	16	2	7	6	—	26	2	19	32	6	—		
2	Kingston <i>W</i> ..	8071	33566	1121	650	153	239	—	34	3	12	8	6	31	—	20	36	153	4		
3	Surbiton <i>H</i> ..	11199	245	124	32	46	—	—	1	—	5	3	1	3	—	5	13	4	—		
4	Esher, <i>part of</i> <i>HH</i> ..	6601	12059	357	170	46	55	—	4	—	5	3	—	4	—	13	19	6	1		
5	Hampton <i>HL</i> ..	4565	18252	495	268	70	71	—	13	—	6	11	1	25	1	11	10	7	9		
1	Richmond <i>WH</i> ..	2160	25389	625	404	84	139	—	3	1	5	8	2	21	—	36	49	102	2		
2	Mortlake <i>H</i> ..	2823	16159	450	220	65	50	—	1	—	4	7	1	11	1	25	40	2	1		
1	Bromley <i>HHH</i> ..	9127	23815	639	260	54	64	—	—	6	9	5	1	11	1	5	11	28	15		
2	Beckenham <i>H</i> ..	6542	21969	569	244	66	67	—	11	2	1	6	1	16	—	8	12	9	7		
3	Chislehurst, <i>part of</i> <i>WHH</i> ..	14307	20372	614	346	97	112	—	10	1	2	18	—	11	1	12	14	82	2		
1	Bexley <i>HHH</i> ..	12540	30590	1094	505	137	150	—	1	13	31	4	2	42	3	24	25	19	23		
2	Dartford <i>WH part of</i> ..	—	—	—	35	2	20	—	1	—	3	—	1	—	—	2	35	—	—		
1	Sunbury <i>W</i> ..	11054	13671	420	219	65	53	—	6	2	5	12	3	14	—	7	5	2	13		
2	Staines <i>WH</i> ..	13277	13221	438	207	57	68	—	1	—	—	15	—	14	4	10	9	33	7		
1	Hillingdon <i>WHH</i> ..	6035	12237	379	225	49	70	—	—	6	17	5	2	13	—	8	7	58	7		
2	Uxbridge ..	12757	7253	219	116	33	35	—	1	1	—	4	—	5	—	5	4	—	—		
3	Hayes <i>WH</i> ..	7952	11051	312	132	38	37	—	—	—	5	1	3	10	1	5	5	—	3		
1	Isleworth <i>WHH</i> ..	6967	26004	797	489	108	175	—	2	—	9	8	1	17	—	11	14	138	10		
2	Twickenham <i>HH</i> ..	2415	16027	493	258	82	71	—	1	—	6	9	2	16	5	14	14	9	5		
3	Brentford <i>HHHH</i> ..	4318	37777	1168	542	152	168	—	2	2	6	4	6	38	—	22	20	20	17		
4	Chiswick ..	1245	21963	787	350	102	90	—	1	6	11	—	2	35	—	5	10	—	12		
5	Acton <i>WH</i> ..	6132	30945	1210	565	222	115	—	2	—	29	—	2	79	4	10	11	1	23		
1	Harrow <i>HHH</i> ..	13809	15715	453	182	36	74	—	—	2	3	4	2	11	—	4	1	10	5		
2	Edgware <i>HH</i> ..	6994	3844	106	54	9	16	—	—	2	3	—	—	4	—	3	2	5	—		
3	Willesden <i>HHH</i> ..	4383	61265	2855	1174	443	206	—	15	11	67	47	12	100	24	30	35	63	35		
4	Hendon <i>WH</i> ..	8382	15843	551	370	100	116	—	—	12	6	1	29	—	12	29	95	—	—		
1	South Mimms <i>HH</i> ..	15599	8474	266	107	26	34	—	1	—	1	2	—	12	—	5	10	2	—		
2	Barnet <i>WHH</i> ..	5478	12045	310	193	38	68	—	3	1	6	3	1	11	—	7	8	36	6		
3	Finchley <i>HHH</i> ..	4688	25820	728	312	82	85	—	17	1	—	8	3	20	—	6	14	6	2		
1	Hornsey <i>HH</i> ..	3039	61097	1757	743	180	264	—	11	3	21	13	3	52	1	17	44	4	1		
2	Tottenham <i>HH</i> ..	4642	97174	3539	1605	587	355	—	20	13	43	49	11	154	11	48	146	84	9		
3	Edmonton <i>WHW</i> ..	7489	36351	1465	784	228	228	—	33	4	16	15	5	71	2	22	65	150	2		
4	Enfield <i>WWHH</i> ..	12602	31536	1150	544	164	123	—	38	5	22	13	4	43	—	16	27	37	8		
5	Waltham Abbey ..	11017	6066	181	79	18	19	—	—	—	5	1	—	5	—	1	2	—	2		
6	Cheshunt <i>H</i> ..	8480	9620	340	141	40	38	—	1	—	14	—	2	8	4	6	9	2	7		
1	Hatfield, <i>part of</i> <i>W</i> ..	3306	582	13	7	1	4	—	—	—	—	—	—	—	—	—	—	—	—		
1	Bushey <i>H</i> ..	9331	7737	188	79	17	34	—	—	—	1	1	—	4	—	3	7	—	—		
2	Watford <i>WH part of</i> ..	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	4	—	—		
1	Stratford <i>H</i> ..	1100	42983	1741	807	308	131	—	17	7	8	20	11	56	—	43	63	47	25		
2	Plaistow <i>WHH</i> ..	1242	58030	2907	1310	555	168	—	62	16	49	31	18	113	12	26	54	56	32		
3	Canning Town <i>H</i> ..	1558	54750	2454	1192	433	126	—	46	3	30	31	11	80	4	65	110	42	36		
4	Forest Gate <i>W</i> ..	806	49140	1677	656	197	168	—	15	2	13	17	6	40	2	11	26	—	21		
5	East Ham <i>WH</i> ..	3266	32713	2202	818	326	108	—	28	9	30	16	9	68	13	18	31	4	25		
6	Leyton <i>WWWH</i> ..	4334	70188	2622	1517	398	445	—	8	17	26	26	19	97	11	25	37	459	47		
7	Walthamstow <i>HHL</i> ..	6501	57330	2565	946	342	181	—	19	6	36	23	14	95	5	30	55	27	31		
1	Chigwell, <i>part of</i> <i>HHHH</i> ..	11779	12941	352	165	39	59	—	3	—	—	2	—	19	—	11	17	13	3		
2	Epping <i>WH part of</i> ..	—	—	—	8	—	4	—	—	—	—	—	—	—	—	—	8	—	—		
1	Romford, <i>part of</i> <i>WH</i> ..	6556	4324	156	119	32	31	—	—	—	2	8	2	10	—	6	7	30	—		
2	Ilford ..	8493	10913	632	238	88	46	—	4	—	1	5	6	33	1	8	12	—	8		
3	Barking Town <i>H</i> ..	3814	14301	773	365	138	41	—	48	—	5	19	1	58	1	6	10	5	8		
Metropolitan Asy. Hosp.		—	—	—	24	1	—	—	—	6	14	—	1	—	—	—	—	24	—		
London Fever Hospital		—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	1	—		
Middlesex Co. Lun. Asy.		—	—	—	134	—	50	—	—	—	—	—	—	—	—	1	1	134	—		
London Co. Lunatic Asy.		—	—	—	15	—	3	—	—	—	—	—	—	—	—	—	—	15	—		
Darenth Imbecile Asy.		—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—		
City of London Lun. Asy.		—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—		

The parts of sub-districts included within that portion of the Metropolitan Police District which forms the Outer Ring are as follows:—30: 2, Epsom sub-district, except the parish of Ashted (pop. 1351); 37: 1, the parishes of Warringtonham and Farley in Godstone sub-district; 39: 3, Esher sub-district, except the parish of Esher (pop. 2282); 41: 3, Chislehurst sub-district, except the parishes of Chislefield, Cudham, and Knockholt (pop. 3097); 135: 1, the parish of Northaw in Hatfield sub-district; 187: 1, Chigwell sub-district, except the parish of Theydon Bois and part of the parish of Epping (pop. 1079); 189: 1, the parish of Dagenham in Romford sub-district; also deaths in Workhouses and Hospitals for Infectious Diseases belonging to the Outer Ring in 42: 2, Dartford; 137: 3, Watford; and 187: 2, Epping sub-districts.

TABLE 21.—LONDON.—Deaths of Persons belonging to London and its Sanitary Areas registered in the 52 Weeks of 1897.

SANITARY AREAS.	Population estimated to the middle of 1897.	Deaths from											Deaths under 1 year of Age.	
		ALL CAUSES.	Principal Zymotic Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping-cough.	Typhus.	Enteric Fever.	Simple Continued Fever.	Diarrhoea.		Phthisis.
REGISTRATION LONDON }	4,463,169	78971	11453	16	1927	778	2240	1837	1	557	8	4089	7629	21106
WEST LONDON	776,212	12454	1626	—	164	133	335	228	—	83	4	679	1181	3137
NORTH "	1,052,306	17449	2265	2	338	139	459	436	—	147	—	744	1630	4294
CENTRAL "	242,265	5263	654	5	122	51	110	135	—	40	—	191	649	1133
EAST "	718,824	15173	2365	1	566	135	435	338	1	112	1	776	1458	4492
SOUTH "	1,673,562	28632	4543	8	737	320	901	700	—	175	3	1699	2711	8050
West.														
Paddington	126,161	1814	243	—	2	21	64	44	—	9	1	102	142	440
Kensington	171,427	2677	304	—	32	30	81	19	—	21	1	120	247	613
Hammersmith	105,959	1760	211	—	5	11	30	28	—	8	1	128	146	538
Fulham	120,040	2034	362	—	51	26	63	61	—	12	1	148	184	664
Chelsea	96,692	1713	244	—	18	17	54	41	—	14	—	100	175	411
St. George Hanover Sq. ..	80,330	1059	89	—	17	7	17	13	—	10	—	25	93	183
St. Mar. & St. John Wstmr.	53,027	1004	131	—	26	13	23	16	—	6	—	47	143	205
St. James Westminster ..	22,576	393	42	—	13	8	3	6	—	3	—	9	51	75
North.														
St. Marylebone	140,808	2572	227	—	9	9	46	41	—	14	—	108	246	565
Hampstead	77,275	911	90	—	9	6	17	25	—	5	—	28	57	186
St. Pancras	242,255	4518	597	1	87	24	114	124	—	38	—	209	486	1176
Islington	341,134	5387	653	1	99	61	129	134	—	45	—	184	491	1337
Stoke Newington	34,136	488	72	—	7	2	19	15	—	10	—	19	40	101
Hackney	216,698	3573	626	—	127	37	134	97	—	35	—	196	310	926
Central.														
St. Giles	37,840	696	61	—	9	7	7	18	—	6	—	14	113	143
St. Martin-in-the-Fields..	12,711	206	15	1	1	2	3	5	—	1	—	2	33	30
Strand	23,552	501	48	2	10	3	5	6	—	4	—	18	79	92
Holborn	30,493	703	85	—	6	4	16	19	—	5	—	35	84	144
Clerkenwell.. ..	66,162	1459	238	1	49	14	48	49	—	11	—	66	155	385
St. Luke	41,279	1056	157	—	40	13	21	28	—	4	—	51	128	277
City of London	30,228	642	50	1	7	8	10	10	—	9	—	5	57	62
East.														
Shoreditch	121,883	2627	496	1	116	29	78	63	—	20	—	189	247	791
Bethnal Green	129,098	2761	439	—	114	25	84	57	1	17	1	140	255	822
Whitechapel	79,724	1623	171	—	45	15	34	16	—	8	—	53	200	466
St. George-in-the-East ..	47,917	1262	201	—	68	14	28	24	—	10	—	60	132	399
Limehouse	58,506	1462	206	—	63	12	29	37	—	4	—	61	149	386
Mile End Old Town	111,883	2085	330	—	77	12	62	58	—	23	—	98	156	633
Poplar	169,811	3353	519	—	83	28	120	83	—	30	—	175	319	995
South.														
St. Saviour	24,919	611	91	—	32	7	12	12	—	2	—	26	80	150
St. Geo.-the-Mar. Sthrwk.	60,388	1426	262	1	67	14	28	32	—	10	1	109	171	400
Newington	122,191	2588	439	—	85	33	65	82	—	9	—	165	269	754
St. Olave	11,480	233	34	—	6	2	2	8	—	1	—	15	33	67
Bermondsey	85,629	1883	371	—	76	34	62	62	—	13	—	124	174	605
Rotherhithe.. ..	40,643	766	132	—	21	22	21	17	—	2	—	49	64	219
Lambeth	300,948	5247	791	—	140	42	144	141	—	26	—	295	500	1421
Battersea	168,877	2734	470	—	79	47	106	79	—	19	—	140	251	853
Wandsworth	195,612	2606	370	—	27	29	111	42	—	16	1	144	222	683
Camdenwell.. ..	257,575	4276	750	5	141	32	170	111	—	31	—	280	386	1188
Greenwich	178,367	3058	405	2	35	32	70	57	—	29	—	180	263	872
Lee	39,215	516	56	—	6	3	17	5	—	3	—	22	43	119
Lewisham (excl. Penge)..	86,152	1099	147	—	17	9	36	19	—	7	—	59	81	283
Woolwich	41,409	735	105	—	2	8	33	8	—	4	—	50	79	206
Plumstead	61,957	834	120	—	3	6	24	22	—	3	1	61	95	230

In the above Table all deaths of persons in, or on the way to, Hospitals and other Public Institutions, as well as those persons under treatment in surgical homes, or dying by accident or otherwise in the streets, have been distributed, as far as practicable, to the sanitary areas in which the deceased had previously resided. The deaths of 1654 London residents who died outside Registration London in the Islington Union Workhouse at Edmonton, the Strand Union Workhouse at Edmonton, the Holborn Union Workhouse at Mitcham, the City of London Lunatic Asylum at Stone, and the Metropolitan Hospitals and Asylums, have been similarly distributed. In 1972 cases the previous residence was outside Registration London, and these have been excluded from the Table.

TABLE 22.—LONDON.—Death-rates of London and its Sanitary Areas during the 52 Weeks of 1897, after Distribution of Deaths in Public Institutions.

SANITARY AREAS.		PER 1000 PERSONS LIVING.											Deaths under 1 year to 1000 Births registered.	
		Deaths from												
		ALL CAUSES.	Principal Zymotic Diseases.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping cough.	Typhus.	Enteric Fever.	Simple Continued Fever.	Diarrhoea.		Phthisis.
REGISTRATION LONDON		17.7	2.56	0.00	0.43	0.17	0.50	0.41	0.00	0.13	0.00	0.92	1.71	158
ST LONDON		16.1	2.10	—	0.21	0.17	0.43	0.29	—	0.11	0.01	0.88	1.53	160
NORTH "		16.6	2.16	0.00	0.32	0.13	0.44	0.42	—	0.14	—	0.71	1.55	145
CENTRAL "		21.8	2.71	0.02	0.50	0.21	0.46	0.56	—	0.17	—	0.79	2.69	163
EAST "		21.2	3.30	0.00	0.79	0.19	0.61	0.47	0.00	0.16	0.00	1.08	2.03	170
SOUTH "		17.2	2.71	0.00	0.44	0.19	0.54	0.42	—	0.10	0.00	1.02	1.62	158
West.														
St. James's		14.4	1.94	—	0.02	0.17	0.51	0.35	—	0.07	0.01	0.81	1.13	149
St. James's		15.7	1.78	—	0.19	0.18	0.47	0.11	—	0.12	0.01	0.70	1.44	166
St. James's		16.7	1.99	—	0.05	0.10	0.28	0.26	—	0.08	0.01	1.21	1.38	171
St. James's		17.0	3.04	—	0.43	0.22	0.53	0.51	—	0.10	0.01	1.24	1.54	162
St. James's		17.8	2.55	—	0.19	0.18	0.56	0.43	—	0.15	—	1.04	1.81	161
George Hanover Square		13.2	1.10	—	0.21	0.09	0.21	0.16	—	0.12	—	0.31	1.16	133
Margaret & St. John Westminster		19.0	2.47	—	0.49	0.25	0.43	0.30	—	0.11	—	0.89	2.70	166
James Westminster		17.5	1.87	—	0.58	0.36	0.13	0.27	—	0.13	—	0.40	2.27	163
North.														
Marylebone		18.3	1.61	—	0.06	0.06	0.33	0.29	—	0.10	—	0.77	1.75	136
St. Pancras		11.8	1.16	—	0.12	0.08	0.22	0.32	—	0.06	—	0.36	0.74	127
St. Pancras		18.7	2.47	0.00	0.36	0.10	0.47	0.51	—	0.16	—	0.87	2.01	168
St. Pancras		15.8	1.91	0.00	0.29	0.18	0.38	0.39	—	0.13	—	0.54	1.44	136
St. Pancras		14.3	2.12	—	0.21	0.06	0.56	0.44	—	0.29	—	0.56	1.17	121
St. Pancras		16.5	2.90	—	0.59	0.17	0.62	0.45	—	0.16	—	0.91	1.43	147
Central.														
St. Giles		18.4	1.63	—	0.24	0.19	0.19	0.48	—	0.16	—	0.37	2.99	146
Martin-in-the-Fields		16.3	1.19	0.08	0.08	0.16	0.24	0.39	—	0.08	—	0.16	2.60	178
St. Giles		21.3	2.06	0.09	0.43	0.13	0.21	0.26	—	0.17	—	0.77	3.36	161
St. Giles		23.1	2.79	—	0.20	0.13	0.53	0.62	—	0.16	—	1.15	2.76	184
St. Giles		22.1	3.61	0.02	0.74	0.21	0.73	0.74	—	0.17	—	1.00	2.35	184
St. Giles		25.7	3.82	—	0.97	0.32	0.51	0.68	—	0.10	—	1.24	3.11	149
St. Giles of London		21.3	1.66	0.03	0.23	0.27	0.33	0.33	—	0.30	—	0.17	1.89	130
East.														
St. George		21.6	4.07	0.01	0.95	0.24	0.64	0.52	—	0.16	—	1.55	2.03	183
St. George		21.4	3.41	—	0.89	0.19	0.65	0.44	0.01	0.13	0.01	1.09	1.98	171
St. George		20.4	2.16	—	0.57	0.19	0.43	0.20	—	0.10	—	0.67	2.52	148
St. George-in-the-East		26.4	4.27	—	1.42	0.29	0.59	0.50	—	0.21	—	1.26	2.76	197
St. George		25.1	3.54	—	1.08	0.21	0.50	0.63	—	0.07	—	1.05	2.55	193
St. George		18.7	2.97	—	0.69	0.11	0.56	0.52	—	0.21	—	0.88	1.40	149
St. George		19.8	3.07	—	0.49	0.17	0.71	0.49	—	0.18	—	1.03	1.88	170
South.														
St. George		24.6	3.66	—	1.29	0.28	0.48	0.48	—	0.08	—	1.05	3.22	195
St. George-the-Martyr Southwark		23.7	4.35	0.02	1.11	0.23	0.46	0.53	—	0.17	0.02	1.81	2.84	189
St. George		21.2	3.59	—	0.70	0.27	0.53	0.67	—	0.07	—	1.35	2.21	177
St. George		22.1	2.96	—	0.52	0.17	0.17	0.70	—	0.09	—	1.31	2.88	154
St. George		22.1	4.35	—	0.89	0.40	0.73	0.73	—	0.15	—	1.45	2.04	190
St. George		18.9	3.26	—	0.52	0.54	0.52	0.42	—	0.05	—	1.21	1.58	174
St. George		17.5	2.65	—	0.47	0.14	0.48	0.48	—	0.09	—	0.99	1.67	151
St. George		16.2	2.79	—	0.47	0.28	0.63	0.47	—	0.11	—	0.83	1.49	162
St. George		13.4	1.91	—	0.14	0.15	0.57	0.22	—	0.08	0.01	0.74	1.14	135
St. George		16.6	2.91	0.02	0.55	0.12	0.66	0.43	—	0.12	—	1.01	1.50	159
St. George		17.2	2.27	0.01	0.20	0.18	0.39	0.32	—	0.16	—	1.01	1.48	157
St. George		13.2	1.43	—	0.15	0.08	0.43	0.13	—	0.08	—	0.56	1.10	135
St. George (excluding Penge)		12.8	1.71	—	0.20	0.10	0.42	0.22	—	0.08	—	0.69	0.94	129
St. George		17.8	2.54	—	0.05	0.19	0.80	0.19	—	0.10	—	1.21	1.91	158
St. George		13.7	1.97	—	0.05	0.10	0.39	0.36	—	0.05	0.02	1.00	1.56	116

In this Table 0.00 indicates that the deaths were too few to give a rate of 0.005; where no death occurred,—is omitted.

Note.—The rates for Registration London do not in all cases agree with those in other Tables. (See note on preceding page.)

TABLE 23.—Deaths in Public Institutions registered during the 52 Weeks of 1897.

	DEATHS.		
	Persons.	Males.	Females.
TOTAL DEATHS IN PUBLIC INSTITUTIONS	23,553	13,344	10,209
WORKHOUSES AND WORKHOUSE INFIRMARIES	11,611	6,513	5,098
METROPOLITAN ASYLUM HOSPITALS	1,856	859	997
GENERAL HOSPITALS	7,291	4,294	2,997
HOSPITALS FOR SPECIAL DISEASES	715	402	313
LYING-IN HOSPITALS	13	—	13
MILITARY AND NAVAL HOSPITALS	97	55	42
HOSPITALS FOR FOREIGNERS	156	148	8
LUNATIC ASYLUMS	147	92	55
	1,667	881	786

WORKHOUSES AND WORKHOUSE INFIRMARIES.

DISTRICT.	SUB-DISTRICT.	NAME OF INSTITUTION.	DEATHS.	
			Persons.	Males.
1a.—PADDINGTON ..	1. St. Mary, Paddington	WORKHOUSE	25	14
		Infirmary	162	87
1b.—KENSINGTON ..	1. Kensington Town ..	WORKHOUSE	4	3
		Infirmary	499	265
		Infirmary (Marylebone Union)	485	264
2.—FULHAM	3. Fulham	WORKHOUSE	16	7
		Infirmary	427	221
3.—CHELSEA	2. Chelsea, North ..	WORKHOUSE	35	12
		Infirmary	257	140
4.—ST. GEORGE, HANOVER SQUARE.	1. Mayfair	WORKHOUSE { Fulham Road	11	8
		Infirmary	370	217
	2. Belgrave	WORKHOUSE, Wallis's Yard	4	2
5.—WESTMINSTER ..	1. St. James, Westminster.	WORKHOUSE	55	24
6.—MARYLEBONE ..	2. Rectory	WORKHOUSE	63	39
7.—HAMPSFORD ..	1. Hampstead	WORKHOUSE	63	34
8.—PANCRA	2. Tottenham Court ..	Workhouse Infirmary (Central London Sick Asylum) ..	163	107
	5. Camden Town ..	WORKHOUSE	372	172
	6. Kentish Town ..	WORKHOUSE, Casual Wards	—	—
		Infirmary	329	200
9.—ISLINGTON ..	1. Upper Holloway ..	WORKHOUSE { St. John's Road	29	13
		Infirmary	581	291
		WORKHOUSE, Cornwallis Road	3	2
		WORKHOUSE Schools	4	3
		Infirmary (Holborn Union)	390	231
10.—HACKNEY ..	3. Central Hackney ..	Workhouse (City of London Union) ..	6	2
	5. South East Hackney	WORKHOUSE	5	3
		Infirmary	442	247
		Workhouse (Bethnal Green Union) ..	3	3
11.—ST. GILES ..	2. St. Giles, South ..	WORKHOUSE	121	83
12.—STRAND ..	2. Strand	WORKHOUSE	31	18
13.—HOLBORN ..	1. Holborn	Workhouse (Marylebone Union) ..	1	1
14.—LONDON CITY ..	3. St. Sepulchre	WORKHOUSE	6	6
15.—SHOREDITCH ..	2. Hoxton New Town ..	Workhouse (Holborn Union)	226	112
	4. Haggerston	WORKHOUSE	2	2
		Infirmary	384	214
16.—BETHNAL GREEN	3. Bethnal Green, East..	WORKHOUSE	507	270
17.—WHITECHAPEL ..	2. Mile End New Town	Infirmary	386	243
18.—ST. GEORGE-IN- THE-EAST.	2. St. John	WORKHOUSE, Casual Wards	—	—
		WORKHOUSE	1	—
		Infirmary	283	153
19.—STEPNEY ..	2. Ratcliff	WORKHOUSE	1	1
20.—MILE END OLD TOWN.	2. Mile End Old Town, Eastern.	WORKHOUSE	4	1
		Infirmary	224	129
		WORKHOUSE Schools	—	—
		Workhouse (Whitechapel Union) ..	39	23
		Infirmary, part of (City of London Union) ..	44	5

TABLE 23.—Deaths in Public Institutions registered during the 52 Weeks of 1897—continued.

DISTRICT.	SUB-DISTRICT.	NAME OF INSTITUTION.	Deaths.		
			Persons.	Males.	Females.
POPULAR	2. Bromley	<i>Infirmiry, part of (City of London Union)</i> <i>Infirmiry (Poplar and Stepney Sick Asylum)</i> <i>Workhouse (Stepney Union)</i> WORKHOUSE <i>Infirmiry (North Street)</i>	83 601 70 48 —	59 371 37 33 —	24 230 33 15 —
T SAVIOUR, SOUTHWARK.	1. Christchurch, South- wark.	WORKHOUSE	12	12	—
	4. Borough Road..	WORKHOUSE	14	10	4
	7. St. Peter, Walworth ..	WORKHOUSE	45	20	25
T. OLAVE, SOUTHWARK.	1. St. Olave..	WORKHOUSE	42	21	21
	2. Leather Market ..	WORKHOUSE	50	30	20
	4. Rotherhithe ..	<i>Infirmiry</i> (WORKHOUSE, Renfrew Road (<i>Infirmiry, Brook Street</i> WORKHOUSE (Princes Road)	312 32 607	194 20 312	118 12 295
AMBETH.. ..	3. Lambeth Church, Second.	WORKHOUSE Schools..	2	1	1
	7. Norwood	<i>Infirmiry</i> <i>Workhouse Schools (Westminster Union)</i>	436 1	227 1	209 —
VANDSWORTH ..	2. West Battersea ..	WORKHOUSE	10	5	5
	4. Wandsworth	WORKHOUSE (Tooting Home)	3	—	—
	6. Streatham	<i>Workhouse, Fairfield House (Chelsea Union)</i> <i>Workhouse, St. Anne's Home (Pancras Union)</i>	30 30	30 30	— —
AMBERWELL ..	2. Camberwell	(WORKHOUSE (<i>Infirmiry</i> <i>Infirmiry (St. Saviour's Union)</i> WORKHOUSE (Gordon Road) WORKHOUSE (Willowbrook Road)	121 361 621 4	55 217 358 3	66 144 263 —
	3. Peckham	(WORKHOUSE (<i>Infirmiry</i> <i>Workhouse (St. Mary's Roman Catholic Schools)</i>	13 207	9 130	4 77
REENWICH ..	5. Greenwich, East ..	(WORKHOUSE (<i>Infirmiry</i> <i>Workhouse (Holborn Union)</i>	204 54 3	111 27 3	93 27 —
EWISHAM ..	1. Eltham	<i>Workhouse (Islington Union)</i> <i>Workhouse (Strand Union)</i>	83	40	43
	3. Lewisham				
	5. Plumstead, East ..				
ROYDON ..	2. Mitcham				
EDMONTON ..	3. Edmonton				

METROPOLITAN ASYLUM HOSPITALS (LONDON RESIDENTS ONLY).

LFHAM	3. Fulham	Western Fever Hospital	236	108	128
MPSTEAD ..	1. Hampstead	North Western Fever Hospital	290	144	146
ACKNEY ..	3. Central Hackney ..	Eastern Fever Hospital	306	162	144
T. OLAVE, SOUTHWARK.	4. Rotherhithe	South Wharf Shelter	1	1	—
AMBETH ..	6. Brixton	South Western Fever Hospital	181	96	85
VANDSWORTH ..	6. Streatham	Fountain Fever Hospital	272	134	138
REENWICH ..	2. Deptford, Central ..	South Eastern Fever Hospital	262	144	118
EWISHAM ..	3. Lewisham	Park Fever Hospital	19	7	12
COLWICH ..	1. Charlton	Brook Fever Hospital	179	98	81
ARTFORD ..	2. Dartford	Hospital Ships (Small-pox)	11	8	3
		Gore Farm Convalescent Hospital (Small-pox)	11	7	4
EDMONTON ..	2. Tottenham	North Eastern Fever Hospital	77	44	33
	3. Edmonton	Northern Convalescent Fever Hospital	11	6	5

GENERAL HOSPITALS.

ADDINGTON ..	1. St. Mary, Paddington	Children's Hospital	67	28	39
	2. St. John, Paddington	St. Mary's Hospital	263	169	94
ENSINGTON ..	2. Brompton	Queen's Jubilee Hospital	4	2	2
LFHAM	2. St. Paul, Hammersmith	West London Hospital	161	89	72
ELSEA	2. Chelsea, North ..	St. Camillo's Hospital	4	4	—
	3. Chelsea, South ..	Victoria Hospital for Children	93	50	43
		Cheyne Hospital for Children	10	8	2
GEORGE, OVER SQUARE.	2. Belgrave	St. George's Hospital	413	253	160
		Belgrave Hospital for Children	32	22	10
	4. St. Margaret, Westmr.	Westminster Hospital	225	141	84
ESTMINSTER ..	2. St. Anne, Soho ..	Home Hospital	2	1	1
RYLEBONE ..	1. All Souls, Marylebone	Middlesex Hospital	398	210	188
		All Saints Children's Hospital	—	—	—
		St. Elizabeth's Home	—	—	—
		Surgical and Medical Home	—	—	—
		Ladies' Hospital, Harley Street	—	—	—
	3. St. Mary, Marylebone	Samaritan Free Hospital	13	—	13
		Western Ophthalmic Hospital	—	—	—
	4. Christchurch	Home for Incurables	—	—	—
	5. St. John	Hospital for Incurable Children	5	4	1
		St. Helena Home	—	—	—

TABLE 23.—Deaths in Public Institutions registered during the 52 Weeks of 1897—continued.

DISTRICT.	SUB-DISTRICT.	NAME OF INSTITUTION.	Deaths.	
			Persons.	Males.
7.—HAMPSTEAD ..	1. Hampstead	St. Peter's Home, Kilburn	20	—
		Hampstead Home Hospital.. .. .	16	6
		Medical and Surgical Home	—	—
8.—PANCRAS	1. Regent's Park	Hospital for Incurables (Friedenheim)..	63	24
	2. Tottenham Court ..	St. Luke's House	40	22
		University College Hospital	300	192
		Home Hospital	6	3
		Medical and Surgical Home	3	1
	3. Gray's Inn Lane ..	Royal Free Hospital	191	130
	4. Somers Town	London Temperance Hospital	111	70
	5. Camden Town.. ..	North-West London Hospital	28	14
9.—ISLINGTON.. ..	1. Upper Holloway ..	Great Northern Central Hospital	158	83
		Winifred House Convalescent Home ..	3	1
	4. Highbury	Mildmay Memorial Cottage Hospital ..	18	10
		Invalid Home	1	—
10.—HACKNEY	1. Stoke Newington ..	Invalid Asylum	2	—
	4. South West Hackney	Metropolitan Free Hospital	135	72
	5. South East Hackney	Jewish Home and Hospital for Incurables	3	2
12.—STRAND	1. St. Martin in the Fields	Charing Cross Hospital	173	107
	2. Strand	King's College Hospital	220	133
13.—HOLBORN	1. Holborn.. .. .	London Homoeopathic Hospital	63	30
		St. John and St. Elizabeth Hospital ..	32	—
		Hospital for Sick Children	267	159
14.—LONDON CITY ..	1. St. Botolph	City Police Hospital	1	1
	3. St. Sepulchre	St. Bartholomew's Hospital	612	368
15.—SHOREDITCH ..	1. Shoreditch, South ..	Convent Hospital	9	4
	4. Haggerston	North Eastern Children's Hospital ..	111	56
16.—BETHNAL GREEN	1. Bethnal Green, North	Mildmay Medical Mission Hospital ..	30	19
17.—WHITECHAPEL ..	3. Whitechapel Church	London Hospital	1086	683
19.—STEPNEY	1. Shadwell	East London Children's Hospital ..	337	204
21.—POPLAR	2. Bromley.. .. .	Poplar Hospital	57	38
22.—ST. SAVIOUR, SOUTHWARK.	1. Christchurch	Hospital for Diseases of the Skin ..	—	—
23.—ST. OLAVE, SOUTHWARK.	4. Borough Road	Evelina Hospital for Children	159	90
	1. St. Olave	Guy's Hospital	565	343
24.—LAMBETH.. ..	4. Rotherhithe	Lady Gomm Cottage Hospital	—	—
	1. Waterloo Road ..	Royal Hospital for Women and Children	40	16
	2. Lambeth Ch., First	St. Thomas's Hospital.. .. .	598	375
	7. Norwood	British Home for Incurables	5	3
25.—WANDSWORTH ..	2. West Battersea ..	Bolingbroke House Hospital	22	17
	3. Clapham	The Hostel of God	34	7
	4. Wandsworth	Royal Hospital for Incurables	17	—
27.—Greenwich	4. Greenwich, West ..	Cottage Home	—	—
28.—LEWISHAM	1. Eltham	Miller Memorial Hospital	16	6
	2. Lee	Cottage Hospital	5	2
	3. Lewisham	St. John's Hospital	13	4
	4. Sydenham	Board of Works Hospital	—	—
29.—WOOLWICH	1. Charlton.. .. .	Home for Sick Children	15	9
	3. Woolwich Arsenal ..	Cottage Hospital	7	4
	4. Plumstead, West ..	Convalescent Home	9	5
	5. Plumstead, East ..	Crole-Wyndham Convalescent Home ..	—	—

HOSPITALS FOR SPECIAL DISEASES.

1a.—PADDINGTON ..	1. St. Mary, Paddington	Lock Hospital	2	—
1b.—KENSINGTON ..	2. Brompton	Consumption Hospital, part of	150	80
2.—FULHAM	2. St. Paul, Hammersmith	St. John's Hospital for Skin Diseases ..	3	2
3.—CHELSEA	2. Chelsea, North ..	Consumption Hospital, part of	95	70
		Cancer Hospital	95	32
		Hospital for Women	13	—
4. ST. GEORGE, HANOVER SQUARE.	2. Belgrave.. .. .	Gordon Hospital for Fistula	—	—
5.—WESTMINSTER ..	3. St. John, Westminster	Grosvenor Hospital for Women and Children	2	—
	1. St. James	Hospital for Diseases of the Throat ..	9	5
	2. St. Anne, Soho	British Hospital for Diseases of the Skin	—	—
		Hospital for Women	22	—
		Hospital for Diseases of the Heart ..	7	5
		Male Lock Hospital	—	—
		St. John's Hospital for Diseases of the Skin	—	—
6.—MARYLEBONE ..	1. All Souls.. .. .	Royal Ear Hospital	—	—
		West End Hospital for Paralysis	1	1
		St. Agnes Hospital for Consumption ..	—	—
		London Throat Hospital	—	—
	3. St. Mary	Orthopædic Hospital	1	—
	5. St. John	Home for Consumptive Females	2	—
7.—HAMPSTEAD ..	1. Hampstead	Hospital for Epilepsy and Paralysis ..	1	1
		North London Consumption Hospital ..	20	14

TABLE 23.—Deaths in Public Institutions registered during the 52 Weeks of 1897—continued.

DISTRICT.	SUB-DISTRICT.	NAME OF INSTITUTION.	Deaths.		
			Persons.	Males.	Females.
PANCRAS	1. Regent's Park	St. Saviour's Hospital for Cancer	5	—	5
	2. Tottenham Court	London Skin Hospital	1	1	—
		All Saints' Institution for Women	—	—	—
	3. Gray's Inn Lane	Central London Throat and Ear Hospital	7	4	3
ISLINGTON	4. Somers Town	Central London Ophthalmic Hospital	—	—	—
	2. Islington, South West	Hospital for Women	24	1	23
	—STRAND	London Fever Hospital	13	10	3
	1. St. Martin in the Fields	Royal Westminster Ophthalmic Hospital	—	—	—
HOLBORN	2. Strand	St. Peter's Hospital for Stone	11	11	—
	1. Holborn	City Orthopædic Hospital	1	—	1
		National Hospital for Paralysis	43	24	19
		Alexandra Hospital for Hip Diseases	—	—	—
—LONDON CITY	5. City Road	Royal Hospital for Diseases of the Chest	4	1	3
		Royal London Ophthalmic Hospital	95	74	21
	5. Broad Street	Royal London Ophthalmic Hospital	2	1	1
	3. Bethnal Green East	City of London Hospital for Diseases of the Chest	84	64	20
—BETHNAL GREEN	5. London Road	Royal South London Ophthalmic Hospital	2	1	1
	—ST. SAVIOUR, SOUTHWARK.				

LYING-IN HOSPITALS.

CHELSEA	2. Chelsea, North	St. John the Divine Lying-in Hospital	Women	3	—	3
			Children	2	1	1
MARYLEBONE	3. St. Mary	Queen Charlotte's Lying-in Hospital	Women	—	—	—
			Children	26	16	10
—HACKNEY	4. South West Hackney	Salvation Army Maternity Hospital	Women	—	—	—
			Children	12	2	10
—ST. GILES	2. St. Giles, South	British Lying-in Hospital	Women	1	—	1
			Children	1	1	—
—HOLBORN	5. City Road	City of London Lying-in Hospital	Women	3	—	3
			Children	15	9	6
—MILE END OLD TOWN.	1. Mile End Old Town Western	East End Mothers' Home	Women	11	7	4
			Children	1	—	1
—LAMBETH	1. Waterloo Road	General Lying-in Hospital	Women	16	10	6
			Children	2	—	2
	4. Kennington, First	Clapham Maternity Hospital	Children	14	9	5

MILITARY AND NAVAL HOSPITALS.

ST. GEORGE, LANOVER SQUARE.	3. St. John, Westminster	Station Hospitals	13	13	—
—GREENWICH	5. Greenwich, East	Seamen's Hospital	109	103	6
—WOOLWICH	1. Charlton	Herbert Hospital	28	27	1
	3. Woolwich Arsenal	Garrison Female Hospital	4	3	1
		Royal Arsenal Infirmary	—	—	—
		Auxiliary Hospital	2	2	—

HOSPITALS FOR FOREIGNERS.

—HACKNEY	4. South West Hackney	German Hospital	112	72	40
—ST. GILES	3. St. Giles, North	French Hospital	31	17	14
—HOLBORN	1. Holborn	Italian Hospital	4	3	1

LUNATIC ASYLUMS.^o

—HOLBORN	5. City Road	St. Luke's Hospital for Lunatics	13	2	11
—SHOREDITCH	1. Shoreditch, South	Hoxton House Lunatic Asylum	55	30	25
—BETHNAL GREEN	3. Bethnal Green, East	Bethnal House Lunatic Asylum	37	16	21
—POPLAR	1. Bow	Grove Hall Lunatic Asylum	52	39	13
—ST. SAVIOUR, SOUTHWARK.	5. London Road	Bethlem Royal Hospital for Lunatics	20	12	8
—WANDSWORTH	4. Wandsworth	Middlesex County Lunatic Asylum†	6	2	4
—CAMBERWELL	2. Camberwell	Camberwell House Lunatic Asylum	44	12	32
—EPSOM	1. Carshalton	Peckham House Lunatic Asylum	36	21	15
—GODSTONE	1. Godstone	London County Lunatic Asylum, Banstead†	214	124	90
—CROYDON	1. Croydon	London County Lunatic Asylum, Imbeciles, Caterham†	138	65	73
—DARTFORD	2. Dartford	London County Lunatic Asylum, Cane Hill†	148	89	59
—UXBRIDGE	3. Hayes	Metropolitan Asylum for Imbeciles, Darent†	74	41	33
—BARNET	3. Finchley	City of London Lunatic Asylum, Stonet†	32	25	7
—WATFORD	2. Watford	London County Lunatic Asylum, Hanwell†	143	71	72
—ROMFORD	2. Ilford	London County Lunatic Asylum, Colney Hatch†	230	101	129
		Metropolitan Asylum for Imbeciles, Leavesden†	179	98	81
		London County Lunatic Asylum, Claybury†	246	133	113

Private Lunatic Asylums are excluded from this list, except those in which pauper lunatics are received. London residents only.

TABLE 24.—LONDON.—Weekly Deaths from the principal ZYMOTIC DISEASES during the **Four**
Fifty Years

	SMALL-POX.				MEASLES.				SCARLET FEVER.				DIPHTHERIA.			
	1894	1895	1896	1897	1894	1895	1896	1897	1894	1895	1896	1897	1894	1895	1896	1897
YEAR	89	55	9	16	3293	2633	3697	1929	962	829	942	780	2670	2316	2683	228
March Quarter.. . .	7	10	5	12	787	300	1384	162	274	141	264	166	725	426	683	64
June „	34	3	3	2	1747	565	1632	298	285	166	197	151	651	446	566	42
Sept. „	43	31	1	2	459	753	497	302	238	253	218	216	641	602	649	48
Dec. „	5	11	—	—	300	1015	184	1167	175	269	263	247	653	842	785	70
Week.																
1	1	—	—	—	60	34	91	12	34	14	28	21	66	50	66	7
2	1	—	—	—	45	30	89	16	26	12	22	15	55	34	48	5
3	—	1	—	—	45	35	102	14	25	9	25	14	48	31	59	6
4	—	—	—	1	35	21	86	13	9	7	26	13	52	29	61	4
5	1	2	—	—	21	13	50	9	23	11	19	14	72	45	61	3
6	—	3	—	—	42	17	76	13	22	15	19	11	55	34	63	3
7	—	1	—	2	40	27	91	8	24	18	23	11	58	27	45	4
8	2	1	—	1	59	26	119	14	19	10	13	10	42	29	44	6
9	1	1	—	—	47	20	128	13	20	7	20	59	31	31	48	4
10	—	—	2	1	66	12	152	13	17	15	13	13	53	34	46	5
11	1	1	—	—	74	12	137	9	19	4	21	7	53	27	45	3
12	—	—	—	—	96	19	129	16	13	15	16	13	55	24	52	4
13	—	—	—	—	157	23	134	12	23	13	17	10	57	31	51	4
14	2	—	—	—	132	18	128	15	20	11	27	12	63	23	45	2
15	—	—	—	—	112	25	158	27	29	15	10	8	50	27	45	3
16	3	—	—	—	125	39	145	20	29	9	13	13	62	30	42	4
17	4	—	—	—	131	26	170	23	25	9	13	13	62	27	41	4
18	—	1	2	—	125	39	152	20	20	13	10	17	58	29	36	2
19	3	—	—	—	152	34	138	20	25	13	16	9	56	41	43	3
20	3	—	—	1	175	39	111	24	20	13	16	9	41	37	56	3
21	7	—	—	—	165	32	120	18	20	10	12	9	37	31	40	3
22	4	—	—	—	148	50	98	21	14	17	19	15	36	41	40	3
23	3	—	—	1	169	36	115	18	17	12	13	14	34	33	51	3
24	—	1	—	—	122	72	111	33	18	12	22	10	43	45	49	2
25	5	—	—	—	99	71	107	34	18	11	18	14	44	37	40	2
26	—	1	1	—	92	84	79	25	19	18	15	11	56	38	37	3
27	1	3	1	—	88	73	81	26	17	12	15	18	43	53	43	4
28	2	1	—	—	57	75	62	23	16	20	11	13	45	50	47	3
29	1	—	—	—	57	82	52	22	24	23	20	20	36	39	55	4
30	1	1	—	1	53	94	58	29	29	14	17	18	52	48	50	4
31	5	—	—	—	50	67	59	31	18	24	24	12	57	57	43	4
32	10	3	—	1	33	70	42	21	19	15	15	16	62	55	54	3
33	4	1	—	—	34	62	45	26	14	21	23	19	57	50	59	2
34	2	6	—	—	27	55	28	31	17	27	15	15	43	24	59	2
35	7	4	—	—	18	56	19	14	13	21	16	11	33	40	32	3
36	6	5	—	—	13	40	24	15	13	20	16	10	39	38	49	2
37	3	2	—	—	9	28	12	17	15	19	18	26	55	55	48	3
38	—	2	—	—	13	24	7	18	15	13	11	19	52	37	49	4
39	1	2	—	—	7	27	8	29	18	24	17	19	67	56	61	4
40	1	—	—	—	9	15	7	19	9	22	27	20	66	44	69	5
41	—	2	—	—	10	34	14	41	12	25	24	18	54	56	52	4
42	—	1	—	—	8	42	9	48	18	23	16	16	61	76	66	5
43	—	1	—	—	24	48	10	58	17	19	15	22	49	61	57	6
44	1	—	—	—	15	75	12	74	10	23	11	20	54	72	84	5
45	—	1	—	—	13	97	19	78	9	19	18	20	42	75	53	4
46	—	—	—	—	22	77	12	87	8	14	21	27	44	61	60	3
47	—	—	—	—	21	103	11	120	14	27	20	26	48	69	59	4
48	—	1	—	—	29	100	19	108	19	17	19	21	54	83	48	5
49	—	1	—	—	36	105	17	122	18	19	26	18	57	69	60	5
50	—	1	—	—	32	96	16	134	13	19	16	19	53	63	52	6
51	1	—	—	—	35	126	15	112	14	25	19	9	36	62	58	5
52	1	—	—	—	46	97	9	166	14	17	12	11	35	71	38	5
53	—	—	—	—	—	—	14	—	—	—	19	—	—	—	49	—

Years 1894-1897; and the AVERAGE WEEKLY Numbers from these DISEASES during the 1847-1896.

COOPING-COUGH.				FEVER.				DIARRHŒA.				WEEKLY AVERAGE in 50 Years, 1847-96.							
1895	1896	1897	1894	1895	1896	1897	1894	1895	1896	1897	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping- cough.	Fever.	Diarrhœa.		
1483	2937	1842	653	629	609	593	1780	3600	3223	4104	16	37	40	18	48	33	55	YEAR.	
511	979	543	145	135	142	127	171	166	129	179	19	34	33	17	68	32	14	March Qr.	
448	1188	471	131	81	85	85	140	316	269	195	20	45	28	16	58	29	21	June "	
261	504	373	111	159	169	144	1215	2655	2624	3510	11	30	41	18	33	32	160	Sept. "	
263	266	455	266	254	213	237	254	463	201	220	12	38	57	22	35	38	26	Dec. "	
23	39	31	10	17	14	9	9	14	14	11	17	46	42	19	60	35	14	Week.	
35	40	33	16	16	14	14	12	15	6	16	19	18	43	17	62	35	14	1	
21	59	41	16	20	13	7	16	16	11	16	19	38	41	16	65	33	14	2	
27	64	47	12	17	17	8	15	10	7	11	19	32	36	17	70	33	14	3	
30	64	49	14	9	12	15	14	12	14	11	20	27	33	19	70	33	15	4	
29	99	41	6	13	8	9	17	12	16	17	20	26	33	18	71	31	15	5	
48	72	42	8	10	10	6	16	10	6	13	19	26	31	18	69	32	14	6	
42	89	42	5	17	12	16	12	7	7	17	19	31	31	16	68	31	15	7	
53	67	38	13	7	8	10	14	11	15	15	19	30	30	16	66	28	15	8	
56	85	31	10	9	8	8	13	16	9	11	18	34	28	15	66	31	14	9	
43	102	55	14	4	10	8	10	10	10	14	17	35	26	17	68	32	14	10	
49	89	50	12	5	6	9	7	14	7	11	17	37	26	16	70	30	14	11	
												40	28	16	73	32	13	12	
																		13	
44	99	54	7	6	6	10	7	15	7	14	19	41	26	16	69	29	13	14	
49	116	43	9	3	4	2	14	18	7	9	20	42	26	17	70	30	13	15	
51	117	50	9	5	7	7	9	7	13	16	15	21	44	27	15	68	30	16	
44	134	40	9	5	6	5	8	13	3	8	20	46	26	16	66	29	13	17	
36	114	35	8	5	10	1	11	18	12	15	21	46	28	15	63	29	15	18	
35	96	33	9	9	5	6	14	19	10	12	20	46	27	16	62	27	13	19	
31	83	28	9	8	8	9	15	18	11	9	22	46	27	16	59	29	15	20	
30	94	47	15	9	4	11	11	14	14	12	22	47	29	16	58	29	15	21	
30	83	29	13	5	8	8	10	16	10	14	19	48	30	16	54	28	17	22	
32	86	36	11	9	7	8	9	19	17	12	19	48	31	16	49	28	21	23	
40	58	23	10	5	4	6	5	21	20	16	19	47	29	17	45	29	27	24	
18	48	31	12	5	10	10	12	46	47	25	19	46	31	17	44	27	41	25	
29	60	22	10	7	6	5	15	92	89	34	18	44	31	17	44	28	58	26	
25	60	30	3	5	11	10	35	169	128	84	16	43	33	16	41	29	94	27	
19	54	30	7	11	7	9	94	270	208	128	14	39	34	17	42	30	152	28	
23	60	38	8	6	4	6	140	373	343	270	14	39	36	17	42	29	207	29	
22	50	39	6	9	10	2	122	397	503	459	13	38	37	18	39	30	246	30	
17	47	23	6	13	13	7	126	373	441	573	11	37	38	18	35	29	235	31	
26	20	41	25	11	9	7	164	224	328	621	11	32	39	18	34	31	214	32	
10	37	33	6	15	18	14	124	163	217	537	11	31	40	17	31	32	197	33	
20	21	24	29	11	10	12	114	112	147	349	11	27	42	17	30	32	176	34	
22	26	23	8	11	13	7	71	122	92	186	10	24	42	17	30	33	164	35	
15	17	31	29	14	21	14	16	79	129	69	128	10	21	46	17	29	34	36	
14	31	27	10	16	14	21	62	107	61	73	9	18	48	19	28	36	110	37	
21	16	25	8	22	24	15	49	109	54	59	10	18	48	21	27	37	89	38	
25	27	22	13	11	21	18	35	107	33	43	8	17	56	22	25	37	75	39	
7	14	9	21	22	13	24	33	102	39	32	9	20	59	22	25	37	58	40	
10	19	18	20	22	18	24	30	87	29	31	10	23	60	22	24	38	48	41	
15	15	29	17	20	18	23	26	62	14	22	9	26	61	24	25	39	39	42	
20	14	17	14	20	10	24	19	45	14	16	10	28	63	21	26	39	30	43	
11	19	19	17	17	27	24	20	36	13	20	10	33	63	21	28	40	26	44	
14	8	25	25	24	15	20	16	20	13	21	12	37	60	23	29	38	21	45	
21	21	29	21	23	17	15	23	25	7	8	12	39	60	22	33	40	20	46	
20	21	35	23	13	18	21	15	22	11	13	12	43	59	24	35	39	17	47	
19	17	38	18	21	17	16	25	14	13	15	13	47	57	22	38	39	16	48	
30	18	46	17	17	9	14	14	9	7	12	15	48	53	24	43	40	16	49	
24	25	45	24	21	14	23	11	6	11	11	16	48	53	23	46	39	14	50	
33	20	57	25	11	15	5	15	20	9	6	16	52	46	21	50	37	14	51	
32	14	76	32	23	9	14	7	15	6	13	16	50	44	21	55	34	14	52	
—	46	—	—	—	13	—	—	—	15	—	—	—	—	—	—	—	—	53	

* The weekly averages for scarlet fever and for diphtheria relate to the 37 years 1860-96.

TABLE 25.—Temperature at Greenwich; Population; Total Deaths, and Deaths at Seven groups of Ages, in London, in each Week of 1897.

POPULATION estimated to the middle of 1897 ..					4463169	115351	416217	1364257	1511613	769821	267522	18388
Number of Week.	WEEK ENDING	TEMPERATURE.			AGES AT DEATH.							
		Mean.	Highest Reading.	Lowest Reading.	ALL AGES.	Under 1 Year.	1-5	5-20	20-40	40-60	60-80	80 and upwards.
	YEAR (of 52 Weeks)	50'3	90'2	23'3	80943	21273	10965	4595	9964	15008	15686	3452
	First Quarter (13 Weeks).	41'1	62'2	23'8	20504	4444	2577	1196	2637	4118	4470	1062
	Second (13 Weeks). "	53'1	90'2	29'9	17261	3632	2037	1032	2378	3664	3725	793
	Third (13 Weeks). "	60'9	89'5	38'2	21560	8211	2692	1110	2348	3286	3267	646
	Fourth (13 Weeks). "	46'0	67'2	23'3	21618	4986	3659	1257	2601	3940	4224	951
1	January 9	39'6	46'0	32'6	1580	308	194	106	218	332	343	79
2	" 16	37'8	46'1	30'5	1538	346	190	96	209	291	334	72
3	" 23	31'1	36'0	23'8	1547	346	172	104	207	304	347	67
4	" 30	33'1	40'3	24'3	1702	369	200	90	213	359	361	110
5	February 6	37'8	48'2	32'4	1764	361	204	77	217	367	428	110
6	" 13	41'4	51'3	30'0	1588	335	189	92	218	310	360	84
7	" 20	43'6	53'1	30'7	1524	330	173	84	205	325	324	83
8	" 27	48'1	58'6	38'3	1627	350	222	109	191	314	355	86
9	March 6	40'6	50'9	32'0	1493	347	172	90	202	277	327	78
10	" 13	41'0	51'1	30'8	1571	347	201	91	196	342	322	72
11	" 20	46'5	57'7	36'6	1531	352	220	83	177	304	332	63
12	" 27	51'9	62'2	44'1	1534	334	230	88	193	263	314	92
13	April 3	42'2	57'9	29'9	1505	319	210	86	191	310	323	66
14	April 10	42'4	56'1	30'4	1501	321	181	86	203	315	322	73
15	" 17	47'4	60'3	29'9	1418	266	178	72	183	310	331	78
16	" 24	46'4	58'2	36'5	1500	333	173	82	191	302	341	78
17	May 1	51'2	67'8	37'9	1442	280	178	88	211	299	321	65
18	" 8	49'7	65'3	37'0	1323	243	174	81	178	280	309	58
19	" 15	47'3	64'7	33'6	1334	274	171	78	206	282	259	64
20	" 22	57'3	77'6	40'5	1321	275	151	78	163	278	307	69
21	" 29	53'5	72'3	41'0	1275	269	152	81	174	277	270	52
22	June 5	59'3	73'6	49'1	1320	274	138	81	201	271	299	56
23	" 12	58'6	83'2	44'7	1177	265	136	68	168	252	237	51
24	" 19	59'8	83'1	44'4	1248	252	138	74	180	282	264	58
25	" 26	64'0	90'2	48'3	1246	291	139	87	164	268	250	47
26	July 3	64'4	78'3	53'1	1156	289	128	76	156	248	215	44
27	July 10	61'5	78'4	44'0	1293	324	177	76	190	244	240	42
28	" 17	65'5	82'1	50'8	1391	425	173	80	178	248	238	49
29	" 24	66'9	84'7	52'1	1708	664	196	97	181	260	262	48
30	" 31	64'6	82'3	53'6	2023	925	280	75	172	267	262	42
31	August 7	68'1	89'5	51'7	2202	1047	285	97	197	263	263	50
32	" 14	63'6	79'5	50'2	2246	1107	287	89	182	272	271	38
33	" 21	62'0	76'0	52'0	2074	961	260	74	191	244	278	66
34	" 28	59'6	71'1	51'0	1748	750	209	90	167	233	243	56
35	September 4	56'8	72'0	41'9	1452	533	172	70	151	242	229	55
36	" 11	54'2	67'0	41'0	1391	429	168	87	192	238	229	48
37	" 18	54'6	67'9	40'9	1378	372	149	98	191	274	244	50
38	" 25	55'4	69'1	38'2	1341	337	169	99	173	241	270	52
39	October 2	56'5	71'0	46'4	1313	337	167	78	183	260	238	50
40	October 9	48'4	60'1	33'0	1324	294	169	91	208	283	220	59
41	" 16	51'9	66'2	37'3	1381	339	177	91	192	261	263	58
42	" 23	53'7	67'2	41'6	1442	366	189	95	178	253	291	70
43	" 30	49'8	65'0	39'2	1514	358	239	104	200	278	273	62
44	November 6	45'7	57'7	39'8	1585	395	286	104	204	287	264	45
45	" 13	48'0	56'8	32'1	1660	433	291	90	181	280	321	64
46	" 20	47'5	59'0	35'8	1617	430	264	101	184	302	283	53
47	" 27	43'4	52'5	28'9	1793	417	342	107	210	324	320	73
48	December 4	39'0	52'1	25'2	1725	399	303	89	190	315	341	88
49	" 11	41'7	54'1	34'8	1866	411	353	84	202	343	373	100
50	" 18	46'2	55'7	32'2	1796	362	313	108	186	316	410	89
51	" 25	35'8	44'9	23'3	1555	339	277	82	187	262	321	87
52	January 1	45'1	52'7	24'3	2360	443	456	111	267	436	544	103

TABLE 26.—Births and Deaths Registered in London, and Meteorology at Greenwich, in each Week of 1897.

Week ending.	BIRTHS.			DEATHS.			Mean Temperature of the Air.	Mean of the		Degree of Humidity (complete saturation = 100).	Fall of Rain in Inches.	Amount of Horizontal Movement of the Air in each Week.	Sun above Horizon in Hours.	Registered Sunshine in Hours.
	Total.	Males.	Femls.	Total.	Males.	Femls.		Highest Readings of the Thermometer.	Lowest Readings of the Thermometer.					
1 Jan. 9	2717	1359	1358	1580	803	777	39°6	43°0	35°7	91	1°08	Miles. 1875	55°8	2°4
2 " 16	2928	1519	1409	1538	765	773	37°8	42°0	35°2	91	0°22	1803	57°4	1°3
3 " 23	2484	1284	1200	1547	800	747	31°1	34°4	27°7	84	0°16	2599	59°3	4°6
4 " 30	2715	1419	1296	1702	843	859	33°1	36°9	28°9	79	0°09	2547	61°8	8°8
5 Feb. 6	2582	1279	1303	1764	884	880	37°8	40°6	35°0	94	1°83	1548	64°5	0°4
6 " 13	2917	1490	1427	1588	816	772	41°4	45°1	37°5	88	0°36	1742	67°4	2°0
7 " 20	2621	1319	1302	1524	787	737	43°6	49°4	38°2	89	0°15	1796	70°5	15°4
8 " 27	2727	1376	1351	1627	822	805	48°1	52°6	44°1	77	0°02	2891	73°7	15°8
9 March 6	2511	1279	1232	1493	768	725	40°6	48°5	34°3	82	1°13	3147	76°9	25°2
10 " 13	2654	1341	1313	1571	808	763	41°0	48°6	34°0	80	0°47	1664	80°0	27°4
11 " 20	2547	1286	1261	1531	806	725	46°5	52°5	41°3	81	0°97	3151	83°3	20°7
12 " 27	2707	1393	1314	1584	802	782	51°9	59°2	46°8	74	0°06	3444	86°6	30°6
13 April 3	2533	1320	1213	1505	778	727	42°2	50°0	36°3	80	0°84	2450	89°8	24°4
14 " 10	2577	1259	1318	1501	787	714	42°4	51°3	35°4	74	0°53	1883	93°1	26°0
15 " 17	2250	1144	1106	1418	752	666	47°4	55°6	39°9	75	0°32	2712	96°2	31°5
16 " 24	2499	1255	1244	1500	790	710	46°4	54°3	40°6	75	0°33	2457	99°3	41°0
17 May 1	2750	1379	1371	1442	766	676	51°2	62°2	41°9	78	0°36	1675	102°2	50°7
18 " 8	2638	1365	1273	1323	720	603	49°7	59°7	41°2	68	0°17	2279	105°0	45°8
19 " 15	2430	1235	1195	1334	709	625	47°3	56°6	38°8	63	0°04	1957	107°6	48°0
20 " 22	2444	1260	1184	1321	693	628	57°3	70°4	43°9	62	0°02	2855	110°1	81°6
21 " 29	2437	1264	1173	1275	662	613	53°5	64°0	45°3	76	0°47	2152	112°2	46°2
22 June 5	2596	1341	1255	1320	722	598	59°3	69°7	51°5	82	0°75	1468	113°9	33°6
23 " 12	2314	1208	1106	1177	649	528	58°6	67°5	50°1	82	0°75	1269	115°1	33°4
24 " 19	2546	1310	1236	1248	637	611	59°8	70°3	50°4	84	0°44	2632	115°8	62°8
25 " 26	2110	1083	1027	1246	624	622	64°0	74°6	54°3	76	0°27	1724	116°1	42°7
26 July 3	2821	1442	1379	1156	624	532	64°4	73°8	56°5	76	0°28	1301	115°4	40°5
27 " 10	2689	1401	1288	1293	712	581	61°5	73°1	51°7	61	0°02	2245	114°4	52°5
28 " 17	2579	1308	1271	1391	695	696	65°5	77°2	53°1	61	0°00	1754	112°9	78°0
29 " 24	2601	1366	1235	1708	921	787	66°9	79°6	56°6	67	0°25	1288	111°1	49°7
30 " 31	2599	1320	1279	2023	1101	922	64°6	75°2	56°3	70	0°47	1860	109°0	58°9
31 August 7	2395	1227	1168	2202	1176	1026	68°1	82°5	56°4	68	0°08	1585	106°2	72°2
32 " 14	2728	1335	1343	2246	1187	1059	63°6	74°9	55°2	73	0°74	1916	103°6	46°0
33 " 21	2662	1334	1328	2074	1088	986	62°0	72°4	54°5	74	0°47	2278	100°7	45°3
34 " 28	2718	1409	1309	1748	924	824	59°6	68°5	53°1	76	0°68	1799	97°6	38°0
35 Sept. 4	2468	1259	1209	1452	748	704	56°8	64°7	50°3	75	1°22	2770	94°6	44°8
36 " 11	2655	1374	1281	1391	708	683	54°2	62°8	46°5	81	0°68	1848	91°3	24°1
37 " 18	2633	1353	1280	1378	740	638	54°6	63°8	46°9	79	0°40	1353	88°3	23°9
38 " 25	2492	1267	1225	1341	701	640	55°4	64°0	48°9	75	0°12	2435	85°0	31°2
39 Oct. 2	2503	1246	1257	1313	707	606	56°5	64°5	50°2	88	1°21	1146	81°8	10°8
40 " 9	2460	1252	1208	1324	695	629	48°4	56°4	41°5	77	0°16	1528	78°6	31°2
41 " 16	2633	1347	1286	1381	721	660	51°9	58°3	45°6	77	0°07	2057	75°6	21°1
42 " 23	2610	1342	1268	1442	708	734	53°7	61°0	47°8	84	0°11	1762	72°4	22°4
43 " 30	2540	1261	1279	1514	814	700	49°8	59°0	41°7	89	0°13	1086	69°3	30°6
44 Nov. 6	2748	1376	1372	1585	818	767	45°7	50°7	41°8	86	0°00	1723	66°4	19°1
45 " 13	2507	1221	1286	1660	862	798	48°0	52°0	42°7	92	0°18	1433	63°5	3°7
46 " 20	2780	1407	1373	1617	838	779	47°5	53°4	41°5	84	0°34	1601	61°1	11°1
47 " 27	2523	1295	1228	1793	891	902	43°4	48°0	38°2	91	0°38	1248	58°6	7°9
48 Dec. 4	2459	1253	1206	1725	836	889	39°0	44°0	32°7	79	0°15	2978	56°7	14°3
49 " 11	2489	1244	1245	1866	950	916	41°7	47°5	36°4	82	0°86	3009	55°4	9°1
50 " 18	2623	1292	1331	1796	910	886	46°2	50°8	40°1	87	0°63	2524	54°4	13°5
51 " 25	2106	1059	1047	1555	764	791	35°8	40°3	30°0	88	0°02	1396	53°9	12°9
52 Jan. 1	2363	1197	1166	2360	1195	1165	45°1	48°7	40°7	87	0°66	3362	54°6	5°0

TABLE 27.—Greenwich Meteorological Elements for the Year 1897. By J. GLAISHER, Esq., F.R.S.

1897. MONTHS.	Mean Reading of the Barometer.	TEMPERATURE OF THE AIR.							Departure from Average of 126 Years, 1771-1896.	Mean Temperature of the Dew Point.	Mean Elastic Force of Vapour.	Weight of Vapour in a Cubic Foot of Air.	Mean Additional Weight required for Saturation.	Mean Degree of Humidity, Saturation=100.	Mean Weight of a Cubic Foot of Air.	RELATIVE PROPORTION OF WIND.				Mean Amount of Cloud.	RAIN.	
		Highest by Day.	Lowest by Night.	Range in Month.	Mean of all Highest.	Mean of all Lowest.	Mean Daily Range.	Mean for the Month.								N.	E.	S.	W.		Number of Days it fell.	Amount collected.
January	29.707	48.3	23.8	24.5	38.7	31.8	6.9	35.4	-1.3	31.8	.179	2.1	0.3	89	556	11	11	4	5	7.9	17	1.61
February	29.929	58.6	30.0	28.6	47.5	38.7	8.8	43.0	+4.3	39.3	.240	2.8	0.4	86	552	4	5	8	11	8.5	14	2.39
March	29.518	62.2	29.9	32.3	52.4	39.1	13.3	45.0	+3.9	38.6	.234	2.7	0.7	79	542	3	2	11	15	6.7	17	3.35
April	29.687	67.8	29.9	37.9	54.7	39.0	15.7	46.0	-0.2	38.8	.236	2.7	0.9	77	544	7	8	8	7	7.0	16	1.62
May	29.795	77.6	33.6	44.0	63.1	42.8	20.3	52.3	-0.3	41.6	.263	3.0	1.5	68	539	11	5	6	9	5.1	11	1.25
June	29.848	90.2	44.4	45.8	71.0	52.3	18.7	61.1	+2.7	53.2	.406	4.5	1.5	75	530	7	6	8	9	6.8	12	1.93
July	29.843	84.7	44.0	40.7	75.8	54.6	21.2	64.5	+2.8	52.5	.396	4.4	2.3	65	528	8	6	5	12	4.8	7	0.73
August	29.670	89.5	50.0	39.5	74.0	54.6	19.4	62.9	+2.0	53.7	.413	4.6	1.8	72	525	2	4	12	13	5.9	20	2.86
September	29.824	71.0	38.2	32.8	63.8	48.2	15.6	55.2	-1.4	48.9	.346	3.9	1.0	80	536	7	5	6	12	7.2	16	2.70
October	30.001	67.2	33.0	34.2	58.7	44.3	14.4	51.0	+1.6	45.6	.306	3.4	0.7	82	544	7	9	9	6	5.1	11	0.48
November	30.013	59.0	28.9	30.1	50.6	40.4	10.2	45.7	+3.2	42.0	.267	3.0	0.5	87	550	6	11	8	5	7.4	10	1.07
December	29.775	55.7	23.3	32.4	46.1	36.0	10.1	41.4	+2.4	37.3	.223	2.6	0.5	86	551	3	6	14	8	5.7	18	2.14
Means	29.801	69.3	34.1	35.2	58.0	43.5	14.5	50.3	+1.6	43.6	.292	3.3	1.0	79	541	76	78	99	112	6.5	169	22.13
																				Mean.	Sum.	Sum.

TABLE 28.—METEOROLOGICAL TABLE for LONDON, 1897.

(Deduced from Observations, at Greenwich, under the Superintendence of the Astronomer Royal, and compiled from Quarterly Tables, furnished to the Registrar-General by James Glaisher, Esq., F.R.S.)

	Temperature of						Elastic Force of Vapour.	Weight of Vapour in a Cubic Foot of Air.		Degree of Humidity.	Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.	Reading of Thermometer on Grass.										
	Air.		Evapora- tion.		Dew Point.			Air— Daily Range.			Mean.	Diff. from Average of 56 Years.	Mean.	Diff. from Average of 56 Years.		Mean.	Diff. from Average of 56 Years.	Amount.	Diff. from Average of 82 Years.	Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.		
Winter ..	Jan, Feb, March.	Spring ..	April, May, June.	Summer ..	July, Aug, Sept.	Autumn ..	Oct, Nov, Dec.	Mean.	Diff. from Average of 126 Years.	Diff. from Average of 56 Years.	Mean.	Diff. from Average of 56 Years.	Mean.	Diff. from Average of 56 Years.	Mean.	Diff. from Average of 56 Years.	At or below 30°.	Between 30° and 40°.	Above 40°.	o	o	o	o			
1897.	50.3	+1.6	+1.0	47.0	+0.6	43.6	+0.1	14.6	-1.3	.262	-.001	3.3	-0.1	79	-3	29.801	+.026	541	-1	22.13	-2.83	45	144	176	21.0	58.4
YEAR.	41.1	+2.3	+1.4	39.1	+1.3	36.6	+1.4	9.7	-2.1	.218	+.012	2.5	+0.1	85	+1	29.718	-.057	550	-3	7.35	+2.43	25	47	18	23.3	46.0
Winter Quarter..	53.1	+0.7	+0.2	48.9	-0.2	44.5	-0.8	18.2	-1.8	.302	-.005	3.4	0.0	73	-4	29.777	-.009	538	-1	4.80	-0.82	3	41	47	26.2	58.4
Spring do. ..	60.9	+1.1	+0.7	55.9	-0.4	51.7	-1.3	18.7	-0.9	.385	-.018	4.3	-0.3	72	-5	29.779	-.013	529	-1	6.29	-1.01	0	5	87	34.8	56.5
Summer do. ..	46.0	+2.4	+1.7	44.0	+1.5	41.6	+1.2	11.6	-0.2	.265	+.009	3.0	-0.1	85	-5	29.930	+.181	548	+2	3.69	-3.43	17	51	24	21.0	51.7
Autumn do. ..																										

In this Table + and - respectively signify that the number in the preceding column is above or below the average to the amount of the quantities to which these signs are affixed.

TABLE 29.—Number of Services, and Average Daily Quantity of Water Delivered by the London Water Companies in each MONTH of 1897.

COMPANIES.		NUMBER OF SERVICES IN												AVERAGE DAILY SUPPLY OF WATER IN GALLONS DURING THE MONTHS OF											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.												
Total Services		838,869	839,698	841,371	842,868	844,425	846,124	846,646	847,934	849,584	850,957	851,911	852,536												
FROM THAMES		404,649	404,937	405,804	406,390	406,993	407,758	408,236	408,693	409,386	410,004	410,358	410,682												
FROM LEA AND FROM OTHER SOURCES		434,220	434,761	435,567	436,478	437,432	438,366	438,410	439,241	440,198	440,953	441,553	441,854												
FROM THAMES.																									
CHELSEA		37,362	37,317	37,357	37,444	37,498	37,548	37,595	37,620	37,648	37,733	37,774	37,776												
WEST MIDDLESEX		80,697	80,697	80,943	81,065	81,155	81,331	81,333	81,392	81,570	81,705	81,705	81,825												
SOUTH WARK AND VAUXHALL		119,491	120,088	120,211	120,323	120,487	120,608	120,693	120,795	120,922	121,022	121,098	121,136												
GRAND JUNCTION		61,022	61,086	61,198	61,278	61,365	61,477	61,569	61,644	61,702	61,768	61,810	61,859												
LAMBETH		105,577	105,749	106,095	106,280	106,488	106,794	107,046	107,242	107,544	107,776	107,971	108,086												
FROM LEA AND FROM OTHER SOURCES.																									
NEW RIVER		161,306	161,360	161,471	161,788	161,947	162,169	162,358	162,614	162,780	163,030	163,061	163,200												
EAST LONDON		188,435	188,758	189,336	189,822	190,413	190,974	190,537	190,222	191,505	191,893	192,264	192,364												
KENT		84,479	84,643	84,760	84,868	85,072	85,223	85,515	85,705	85,913	86,030	86,228	86,390												
COMPANIES.		AVERAGE DAILY SUPPLY OF WATER IN GALLONS DURING THE MONTHS OF																							
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.												
Total Quantities supplied		192,348,123	191,846,113	191,497,668	192,883,122	210,077,127	215,752,965	235,606,010	226,867,393	210,354,540	208,131,876	201,551,410	197,985,432												
FROM THAMES		101,110,295	102,144,042	103,028,161	104,299,849	113,020,888	114,817,747	124,702,702	119,964,285	111,470,892	110,089,945	106,467,548	103,648,376												
FROM LEA AND FROM OTHER SOURCES		91,237,828	89,702,071	88,469,507	88,613,273	97,056,239	100,935,218	110,903,308	106,903,108	98,883,648	98,041,931	95,083,862	94,347,056												
FROM THAMES.																									
CHELSEA		10,997,039	11,718,640	12,092,974	11,769,628	12,621,118	13,101,147	14,495,057	12,890,546	11,921,754	12,287,739	11,929,195	11,629,195												
WEST MIDDLESEX		19,123,165	19,063,481	18,895,163	18,934,708	20,700,162	21,255,935	23,596,340	21,733,218	20,324,960	20,514,859	20,108,769	20,169,796												
SOUTH WARK AND VAUXHALL		32,285,662	32,511,859	32,476,725	32,746,114	34,105,441	33,561,130	37,326,076	37,276,303	36,331,393	34,257,757	32,315,018	31,068,297												
GRAND JUNCTION		17,732,229	17,794,948	18,008,612	18,766,412	20,110,721	20,441,838	22,953,887	21,710,632	20,057,295	19,994,390	18,571,933	18,694,707												
LAMBETH		20,362,100	21,114,914	21,554,487	22,052,387	25,488,426	26,467,687	27,270,742	26,356,216	24,146,520	23,655,200	23,441,633	22,446,471												
FROM LEA AND FROM OTHER SOURCES.																									
NEW RIVER		33,027,000	32,400,000	32,512,000	32,672,000	37,008,000	37,996,000	42,006,000	40,582,000	36,555,000	36,673,000	35,092,500	34,773,395												
EAST LONDON		42,913,750	42,008,321	40,462,107	40,593,514	43,131,785	45,546,542	49,291,142	47,913,697	45,293,742	44,896,142	43,304,214	43,714,542												
KENT		15,267,078	15,263,750	15,475,400	15,436,759	16,916,454	17,392,676	19,606,166	18,407,501	17,029,906	16,472,789	16,087,148	16,106,119												

Note.—The quantities of water in the above Table include the supply for various purposes other than for domestic consumption.

TABLE 30.—Average Number of Services, and Average Daily Quantity of Water DELIVERED for ALL PURPOSES and for DOMESTIC PURPOSES, by the London Water Companies during 1897.

WATER COMPANIES.	AVERAGE NUMBER of SERVICES during the Year.	AVERAGE DAILY SUPPLY OF WATER DURING THE YEAR.				
		Delivered.		Used for Domestic purposes.†		
		Gallons.	Cubic Metres.*	Gallons.	Gallons per Service.	
					1896.	1897.
Total	846,077	206,242,648	937,054	169,118,971	200	200
FROM THAMES	407,824	109,561,227	497,787	89,840,206	221	220
FROM LEA AND FROM OTHER SOURCES ..	438,253	96,681,421	439,267	79,278,765	181	181
FROM THAMES.						
CHELSEA	37,556	12,277,853	55,784	10,067,839	274	268
WEST MIDDLESEX	81,285	20,340,931	92,418	16,679,563	210	205
SOUTHWARK AND VAUXHALL	120,614	33,753,671	153,359	27,678,011	234	229
GRAND JUNCTION	61,482	19,517,573	88,677	16,004,410	253	260
LAMBETH	106,887	23,671,199	107,549	19,410,383	179	182
FROM LEA AND FROM OTHER SOURCES.						
NEW RIVER	162,257	35,941,408	163,298	29,471,955	182	182
EAST LONDON	190,594	44,105,284	200,390	36,166,333	190	190
KENT	85,402	16,634,729	75,579	13,640,477	158	160
Columns	1.	2.	3.	4.	5.	6.

* A cubic metre is equal in volume to 35·3 cubic feet, or to 220·09668 imperial gallons. It is nearly equivalent to the old English *tun* of four hogsheads, holding 35·248 cubic feet. It is in general use on the Continent; and its volume of water weighs a metric *ton*, differing inconsiderably in weight from the *ton* in common use. It is equal to 100 decalitres: thus a decalitre equals 2·2009668 gallons.

† According to returns of the London Water Companies made to the Select Committee on East London Water Bills (Session 1867), it is estimated that during the year 1866 about 82 per cent. of the total supply of water for all purposes was for domestic use: this proportion has been applied in estimating the quantities in columns 4, 5, and 6, showing the gallons probably used for domestic purposes. The average daily quantity of water supplied by the London Companies during the year 1897 was 206,242,648 gallons (937,054 cubic metres, equal to about as many *tuns* by measure, *tons* by weight), of which about 169,118,971 gallons (768,385 cubic metres) were probably used for domestic purposes. The average quantity used daily for domestic purposes to each service (see col. 6) is equal to 90·3 decalitres, and, assuming 7·0 persons to each service, corresponds to 28·6 gallons (13·0 decalitres) to each person. The Returns of the Water Companies include services to uninhabited houses.

REPORT on the CHEMICAL, PHYSICAL, and BACTERIOSCOPIC EXAMINATION of the WATERS supplied by the METROPOLITAN WATER COMPANIES during the YEAR 1897. By SIR EDWARD FRANKLAND, K.C.B., D.C.L., LL.D., M.D., F.R.S., F.I.C.

*Water-analysis Laboratory,
"The Yews," Reigate,*

January 31st, 1898.

SIR,

I HAVE to report to you the results of the chemical analysis and of the physical and bacterioscopic examination of the water supplied by the eight Metropolitan Water Companies and the Colne Valley Company during the year 1897.

At the request of the Associated Metropolitan Water Companies, I have again extended these monthly examinations to (a) the chemical, physical, and bacterioscopic condition of the raw river waters at the intakes of the various Companies, (b) to the bacteriology of these waters after storage, and (c) to the bacterioscopic condition of the water as it issues from the filter beds of each Company, and before it is pumped into the distributing mains.

CHEMICAL AND PHYSICAL EXAMINATION.

Except in the first three months of the year, when these rivers were in high flood, the Thames and Lea were in excellent chemical condition for the operations of the seven Metropolitan Companies who draw their supplies from these rivers.

The only chemical impurity of consequence in these waters is organic matter, the two chief elements of which are carbon and nitrogen. Diagram No. 1 shows the fluctuations of organic matter in the raw river waters taken in by the various Companies drawing their supplies from the rivers Thames and Lea during each month of the year. In this diagram, the proportion of organic matter in a given volume of the Kent Company's water, during the nine years ending December 1876, is taken as unity; the proportions in the same volumes of the river waters are expressed by the ordinates, and the months in which these proportions were found by the abscissæ.

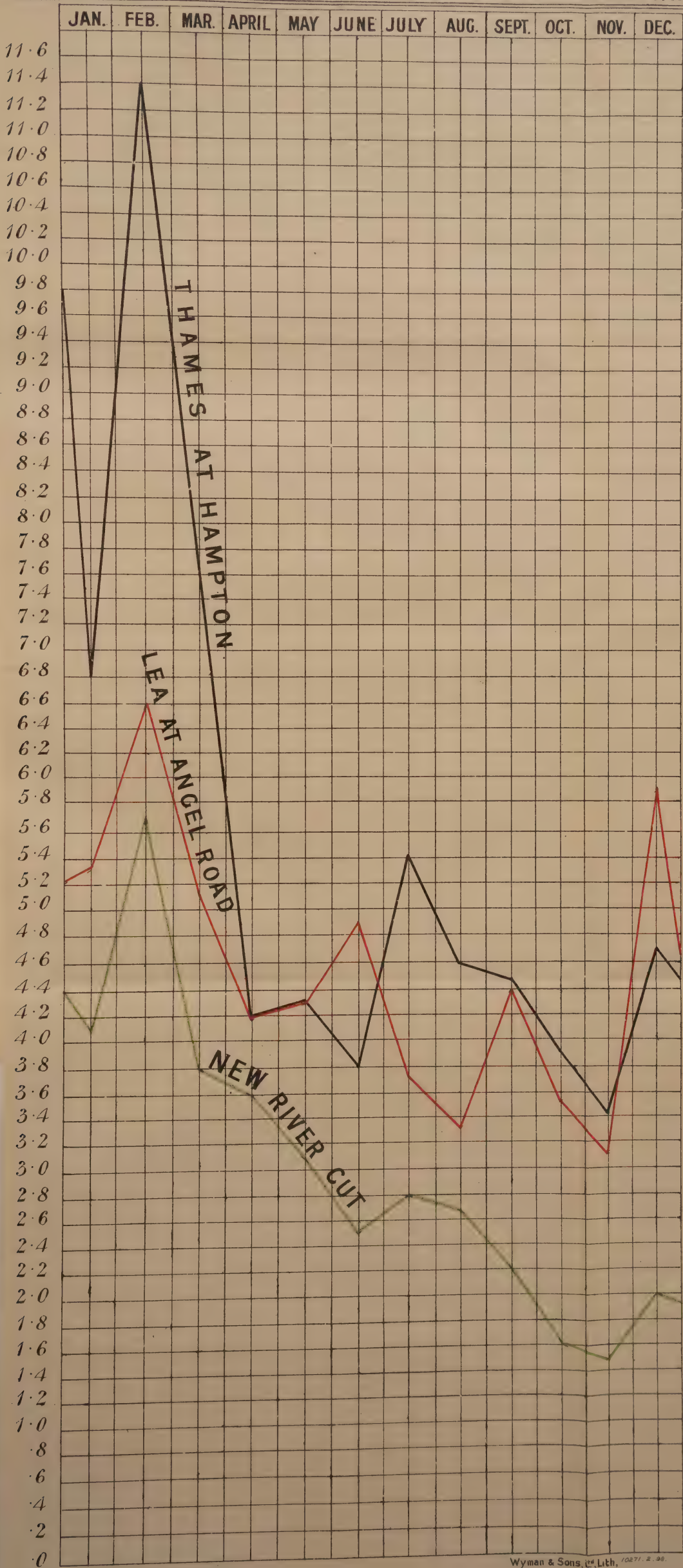
This diagram demonstrates the general chemical superiority of the Lea over the Thames as a raw material. This is especially the case in times of heavy floods. It also shows the greater purity of the Lea in its upper as compared with its lower reaches. The comparison of the water of the New River Cut with that of the river Lea at Angel Road, where the East London Company's intake is situated, must not, however, be interpreted too strictly, because the New River Cut receives water from the Chadwell spring; and also, during dry seasons, from deep wells, a large volume of the water of which is pumped into it. As in 1895 and 1896, so in the past year, the curve of the New River Cut never overtops that of the Lea at Angel Road; and is almost always very much below it. On the other hand, the water of the Lea at Angel Road was in June, and again in December, markedly inferior to the raw Thames water at Hampton. But this is a rare occurrence; and, generally, the raw water of the Lea at Angel Road is, as the diagram shows, better than that of the Thames at Hampton; this being especially the case in times of flood. Thus in February, when the Thames was organically very impure, the Lea at Angel Road contained a very much smaller amount of organic matter.

The next diagram (No. 2), constructed on the same scale as the last, compares the organic matter in the raw Thames water at Hampton with that of the average filtered water delivered in the Metropolis by the five Companies drawing from this river. This diagram shows how great was the

DIAGRAM N^o 1

1897.

PROPORTIONAL AMOUNT OF ORGANIC ELEMENTS IN RAW RIVER WATER.



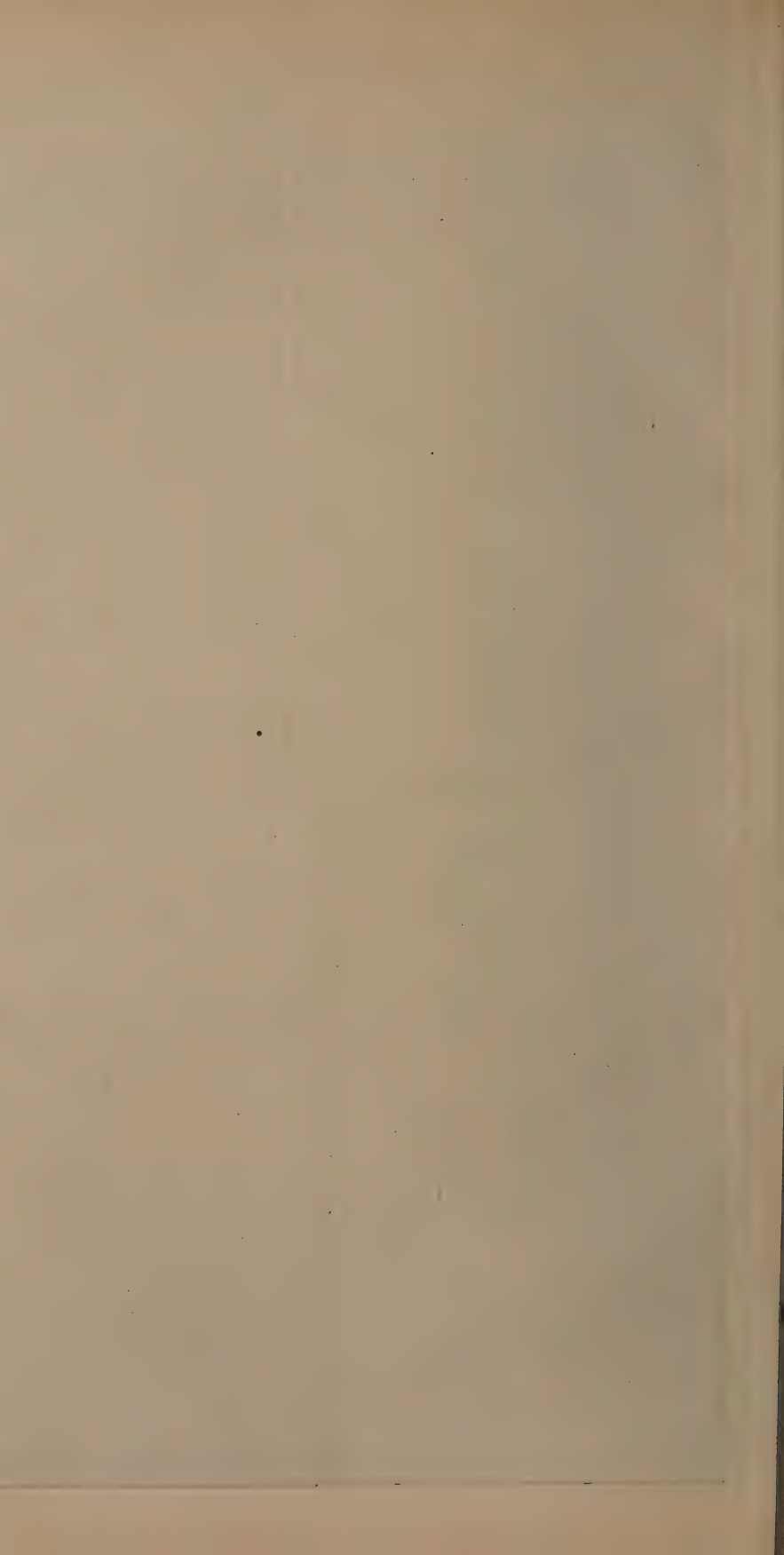


DIAGRAM N^o 2

1897.

PROPORTIONAL AMOUNT OF ORGANIC ELEMENTS IN THAMES WATER.

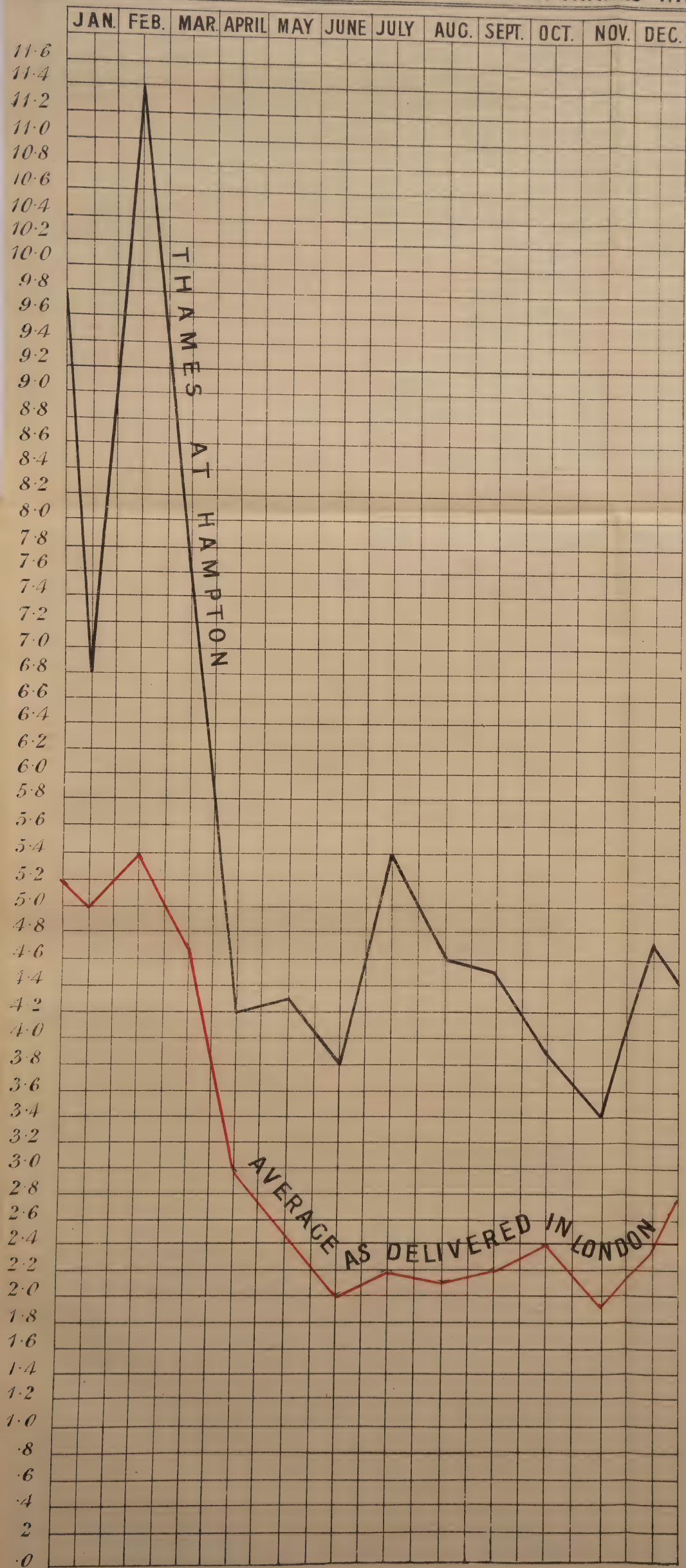


DIAGRAM N^o 3.

1897.

PROPORTIONAL AMOUNT OF ORGANIC ELEMENTS IN RAW LEA & EAST LONDON C^os WATER.

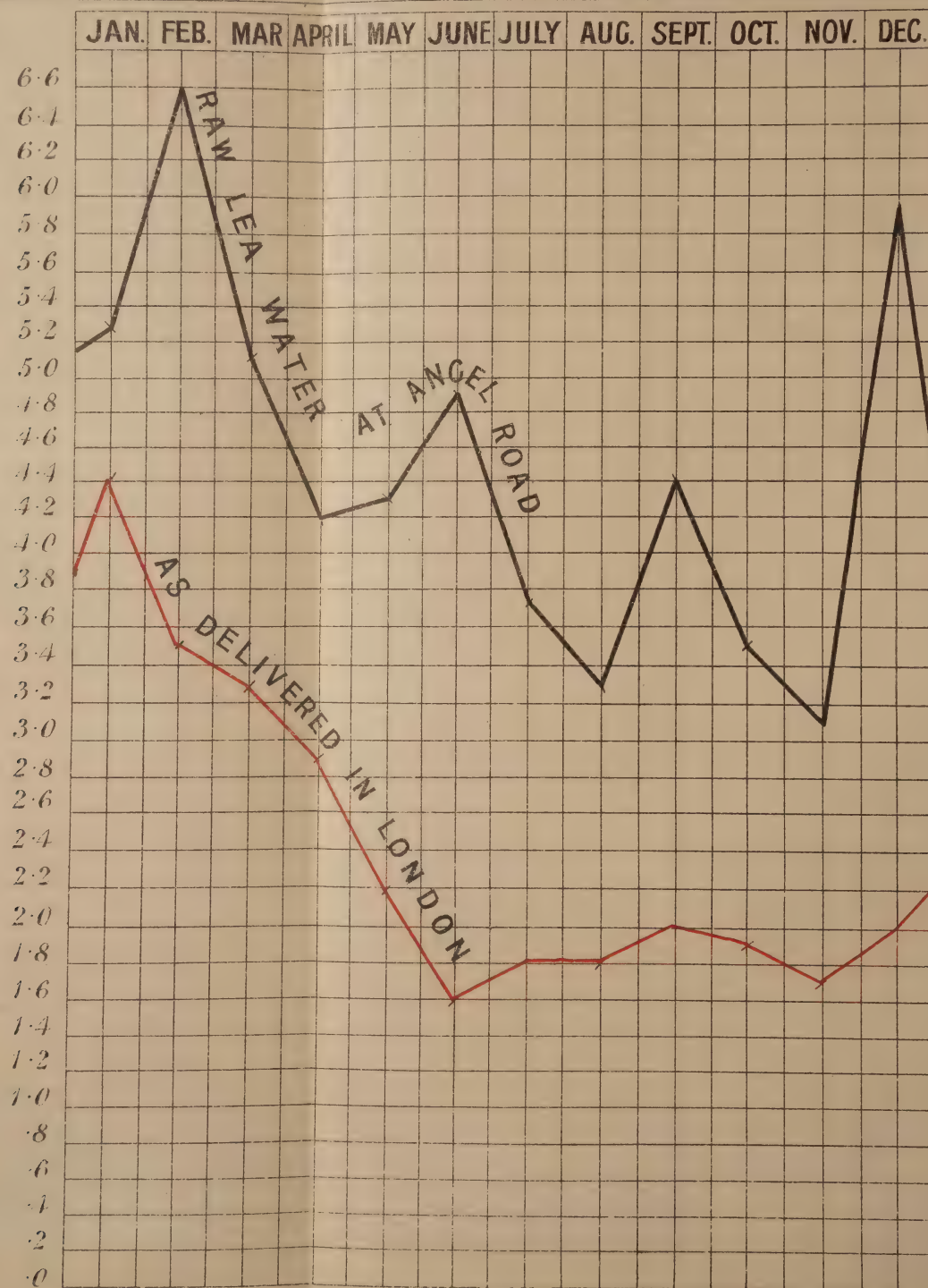
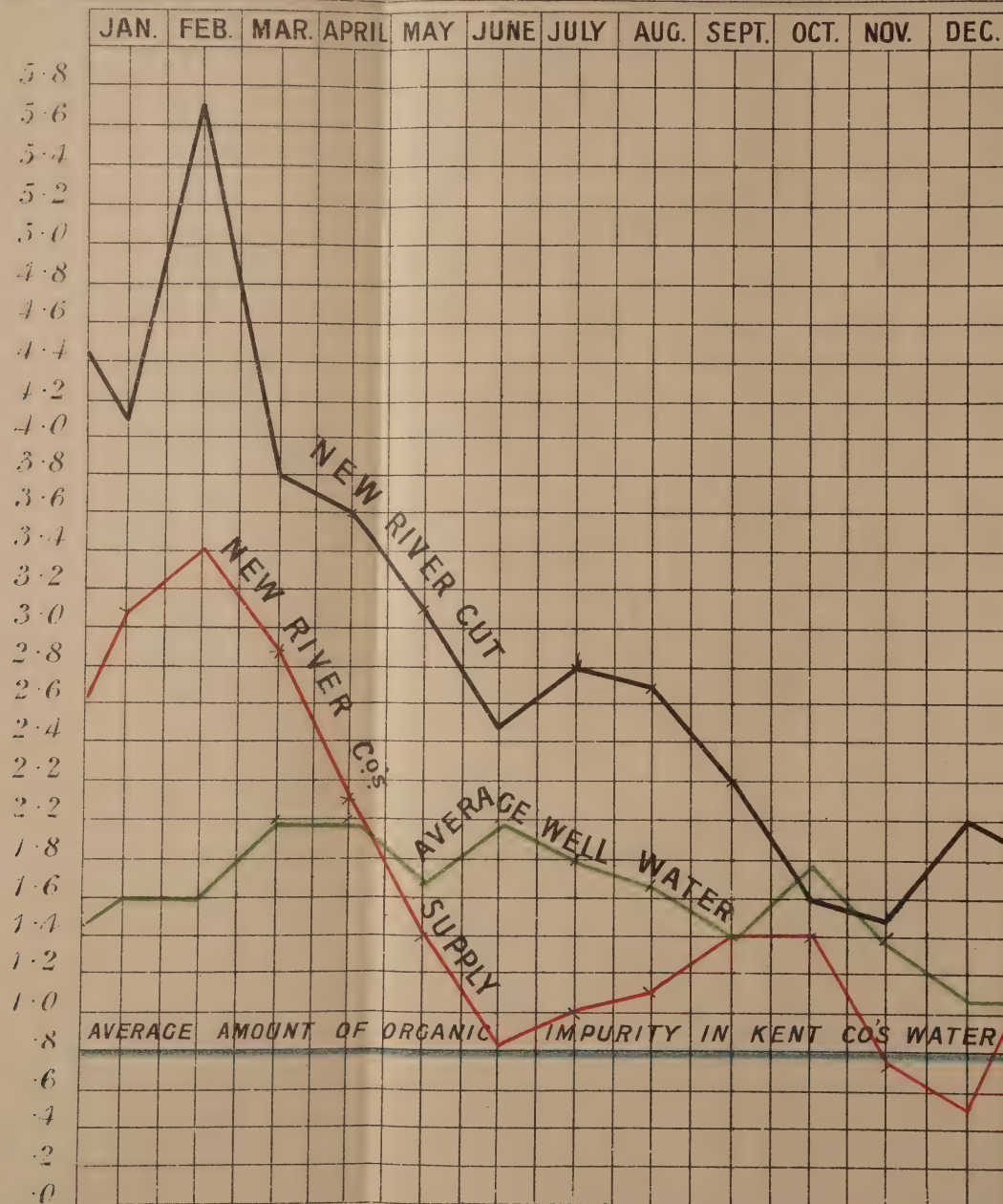


DIAGRAM Nº 4.

1897

PROPORTIONAL AMOUNT OF ORGANIC ELEMENTS IN NEW RIVER AND DEEP WELL WATERS.



chemical improvement effected by the operations of these Companies, even during the severe floods of January, February, and March ; although, as the red curve shows, the storage at the command of the Companies did not enable them entirely to circumvent these floods.

Diagram No. 3 compares the raw Lea water at Angel Road with the filtered supply of the East London Company as delivered in London, the scale being the same as before.

The East London Company possesses more storage capacity than that of any other Metropolitan Water Company ; and the diagram shows that, except in January and February, the water delivered by this Company was scarcely affected by floods in the Lea, and was uniformly of excellent chemical quality.

The next diagram (No. 4) contrasts the organic elements contained in the unfiltered water of the New River Cut with the amount present in the supply of the New River Company ; and, in order to compare the water delivered by this Company with the deep-well waters of the Kent, Colne Valley, and East London Companies, I have introduced into this diagram a third curve showing the average amount of organic matter in these last-named waters. I have also marked the average amount of organic elements in the Kent Company's water during the nine years ending December 1876, this being the standard of organic purity used in these diagrams and in all my reports.

This diagram demonstrates that, except in the first three months of the year, the New River Company's supply was free from flood water, and was, substantially, of the chemical character of excellent spring water, being generally even better than the average of the deep well waters.

All the samples for chemical and physical examination were taken directly from the mains of the several Companies at places recommended by the respective engineers. In addition to the chemical analysis to which each sample has been submitted, the temperature of the water as it issued from the mains at the time of the collection of the samples has been determined, and the appearance which the water exhibited on being viewed in a two-foot tube has been recorded. The result of the chemical analysis and observations of temperature are contained in the accompanying Tables A to L.

Table A gives the temperature of the water at the time of the collection of the samples. From this table, it will be seen that, although the average temperature of the different waters for the year is remarkably uniform, the monthly variations, in the case of the river waters, are very great ; whilst the temperature of the deep well waters is practically uniform throughout the year.

Table B gives the total amount of solid matter in solution found in 100,000 parts by weight of each water. These solid matters are almost wholly composed of mineral substances, which, in these proportions, in no way diminish the fitness of the water for dietetic purposes. But the salts of lime and magnesia constituting the principal part of these mineral ingredients are objectionable ; not only because they impart to the water what is known as "hardness," thus rendering it unsuitable for washing, but also because they produce incrustations and deposits in steam and kitchen boilers and hot-water pipes. The comparatively slight proportion of organic material which the solid matter invariably contains is, on the other hand, of more importance ; because, if present in too large quantity, it interferes with the palatability of the water, and imparts to it a more or less yellowish tint. No unpalatable or objectionably tinted water was delivered in London during the year.

In nature, even the purest waters contain, almost invariably, minute quantities of organic matter ; but, in river water, the presence of even a small proportion is considered objectionable, partly on sentimental, and partly

on hygienic grounds, by reason of the possible origin of some portions of this organic matter. The water, both of the Thames and Lea, receives, above the points where it is abstracted for the purpose of the Metropolitan supply, various contributions of organic matter of animal origin, such as the drainage from manured land, and the effluents of sewage works. This animal matter, though innocuous in itself, may at any time be accompanied by zymotic germs dangerous to health. But, although the sentimental objection to the presence of animal matter cannot be removed, it is gratifying to find, as the result of recent researches, that the zymotic matters of the pathogenic kind are rapidly destroyed in running water, so that the most minute microscopic inspection of the water, as it reaches the intakes of the various Companies, has hitherto failed to discover in it a single pathogenic germ. Further, it is now an established fact that efficient sand filtration would prevent the passage of such germs into the filtered water, even should they arrive in a living condition at the intakes of the Companies. Thus the hygienic objection to the use of filtered water taken from the Thames and Lea is removed. This result of recent observations conducted in this country, in Germany, and especially in the United States of America, is confirmed by the absence, in London since the year 1866, of zymotic diseases traceable to the water supply. To secure this desirable result, however, *efficient* filtration is essential; and there can be no doubt that the serious loss of life during the cholera epidemics of 1849, 1854, and 1866 was due to the want of attention to filtration.

Both river and spring waters are liable to contamination by pathogenic germs, and it may be assumed that river water as it leaves efficient sand filters, and spring water as it bursts from the rock, either at the surface or the headings of a deep well, is equally free from pathogenic organisms, the first being rendered safe by artificial, and the second by natural, filtration. Up to this stage, spring water has the advantage over filtered river water, inasmuch as natural filtration through vast masses of rock is more efficient than sand filtration, although there are not wanting isolated instances of sand filtration being as efficient as natural filtration in the removal of microbes and their germs.

In its subsequent treatment, however, river water gains an advantage over spring water, inasmuch as, if supplied on the constant system, it is almost impossible for it to be subject to post-filter contamination before it reaches the houses of consumers. Spring water, on the other hand, is liable to two sources of contamination. If it comes from a surface source, it often runs through an open channel to the pump or service reservoir, and if this channel is unprotected, the water may be fatally polluted by persons suffering from zymotic disease. If the water is derived from a deep well, it may be similarly poisoned by men working in the well. Cases of most disastrous pollution from both these sources are well known, and the repeated epidemics of typhoid fever occurring in communities supplied with spring or deep-well water emphasise the importance of stringent precautions against such pollution. All conduits of spring water should be effectively fenced off, so as to prevent access of the public, and all men working in wells should be placed under strict medical supervision. These precautions are the more urgently necessary, because these waters are rarely, if ever, filtered; and, indeed, do not seem to be capable, like river water, of efficient filtration; that is to say, any microbes present in them pass through and even multiply in the sand filters.

The saline matters dissolved in the deep-well waters from the chalk are considerably greater in amount than those found in the Thames and Lea; and, inasmuch as this chalk water is sent out in its natural condition by the Kent and East London Companies, these supplies sometimes contain more solid matter than any of the other Metropolitan waters. The Colne valley Company, on the other hand, by treating this chalk water with lime before delivery, so reduces the solid matters that the latter were, on the average,

about one-third less than the amount present in the river waters, and under one-half of that in the deep-well water of the Kent Company.

Tables C and D are very important ; they record the amounts of organic carbon and organic nitrogen in each of the waters as determined by combustion with oxide of copper. Since these are the only two ingredients of the organic matter which can be accurately determined, these results are the only available evidence of the relative proportions of organic matter in the waters.

The tables show that, whilst both the Thames and Lea were occasionally considerably polluted by organic matter, the water actually delivered by the Companies drawing from these rivers was only found to contain it in somewhat larger quantity than usual in the months of January, February, and March. The water distributed from the Lea by the New River and East London Companies was generally, throughout the year, superior to the Thames-derived waters of the Chelsea, West Middlesex, Southwark, Grand Junction, and Lambeth Companies. The New River Company's water, indeed, rivalled and often surpassed the average deep-well water in respect of organic purity.

The relation between the amounts of organic carbon and organic nitrogen recorded in these tables affords data from which an opinion may be formed as to the origin of the organic matter, whether animal or vegetable. If the relative proportion of nitrogen to carbon be high, the inference is that the organic matter is chiefly animal. On the other hand, if it be low, it is certain that the organic matter is chiefly, if not entirely, of vegetable origin.

Examined from this point of view, these tables indicate that the organic matter present in the river water, as delivered in London, was, during the past year, to a very large extent of vegetable origin.

The proportion of organic matter in the deep-well waters of the Kent, Colne Valley, and East London Companies was, almost invariably, very small.

Taking the mean proportion of organic matter contained in the Thames water delivered in 1868 as 1,000, I find that in subsequent years, 1897 included, the following proportions were present :—

Year.	Proportion of Organic Matter present in Thames Water as delivered in London.	Year.	Proportion of Organic Matter present in Thames Water as delivered in London.
1868	1,000	1883	850
1869	1,016	1884	723
1870	795	1885	839
1871	928	1886	756
1872	1,243	1887	690
1873	917	1888	722
1874	933	1889	677
1875	1,030	1890	680
1876	903	1891	1,002
1877	907	1892	831
1878	1,056	1893	762
1879	1,165	1894	955
1880	1,254	1895	731
1881	993	1896	797
1882	1,033	1897	735

These figures show that the Thames water delivered in London has, as regards organic purity, greatly improved since the year 1868, and that, only on rare occasions, has the quality of the water surpassed in excellence that delivered in 1897.

Of the water chiefly derived from the river Lea, that supplied by the New River Company contained in every case, as usual, less organic matter than that present in the water of the East London Company, which was, in this respect however, on the average superior to the best of the Thames waters.

Taking, as before, the mean proportion of organic impurity contained in the Thames water delivered in 1868 as 1,000, I find in that and subsequent years, 1897 included, the following proportions present in the Lea water :—

Year.	Proportion of Organic Matter present in Lea Water as delivered in London.	Year.	Proportion of Organic Matter present in Lea Water as delivered in London.
1868	484	1883	620
1869	618	1884	500
1870	550	1885	603
1871	604	1886	500
1872	819	1887	473
1873	693	1888	506
1874	583	1889	504
1875	751	1890	432
1876	562	1891	684
1877	596	1892	610
1878	747	1893	502
1879	947	1894	554
1880	1,013	1895	541
1881	765	1896	558
1882	711	1897	500

Thus, the Lea water delivered during the year 1897 was, in respect of organic purity, of excellent quality, having been surpassed, in this respect, only three times during the last 30 years.

The organic matter found in the deep-well waters supplied to London during the past 30 years is, of course, much smaller in amount, and the fluctuations from year to year are somewhat less violent than in the river waters. Referred to the same standard, the figures are as follows :—

Year.	Proportion of Organic Matter present in Deep-well Water as delivered in London.	Year.	Proportion of Organic matter present in Deep-well Water as delivered in London.
1868	254	1883	321
1869	312	1884	264
1870	246	1885	200
1871	150	1886	244
1872	221	1887	249
1873	250	1888	241
1874	287	1889	268
1875	250	1890	252
1876	246	1891	357
1877	213	1892	338
1878	323	1893	327
1879	387	1894	348
1880	393	1895	314
1881	405	1896	374
1882	409	1897	403

This table indicates a somewhat larger proportion than usual of organic matter in these waters. The increase is chiefly due to the deep wells of the East London and Colne Valley Companies. Even in these cases, however, the proportion is very small.

Table E shows the proportional amount of organic elements (organic carbon and organic nitrogen) in each of the waters, the average amount of these elements contained in the Kent Company's water during the nine years ending December, 1876, being taken as unity.

This table shows that the maximum, minimum, and average proportion of organic matter, as measured by this standard, present in the several waters during the year 1897, were :—

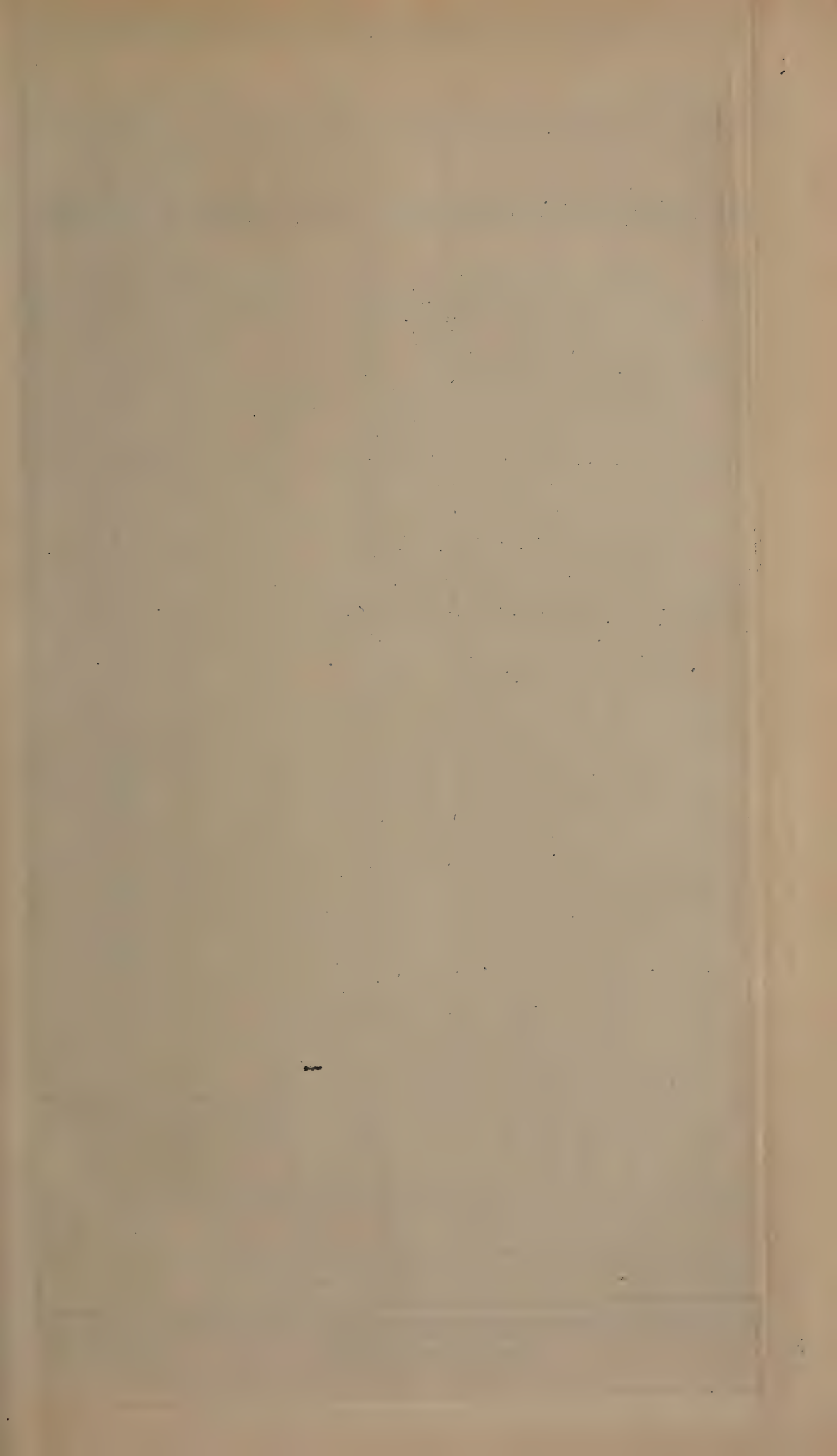
Sources.	Maximum.	Minimum.	Average.
THAMES—			
Chelsea ...	4·8	1·5	2·6
West Middlesex ...	5·3	1·8	2·9
Southwark ...	6·6	1·9	3·2
Grand Junction ...	5·6	2·1	3·2
Lambeth ...	6·8	1·5	3·2
LEA—			
New River ...	3·4	0·5	1·6
East London ...	4·4	1·6	2·4
DEEP WELLS—			
Kent ...	1·2	0·4	0·8
Colne Valley ...	3·3	1·0	2·4
East London ...	2·7	1·1	2·0

Thus, of the deep-well waters, that supplied by the Kent Company contained on the average, by far the smallest proportion of organic matter. Of the river waters, that sent out by the New River Company stood much higher, in regard to organic purity, than that delivered by any of the other river companies. In this respect, it more than equalled the East London Company's deep-well water, and considerably surpassed that of the Colne Valley Company. Lastly, the East London Company's water derived from the Lea was, on the average, somewhat superior to the best of the Thames-derived waters.

The following table exhibits the maximum amount of organic matter in the waters supplied from the Thames and the Lea during the years 1868 to 1897 inclusive, the average of the samples from each source in the month of greatest impurity being taken for comparison :—

MAXIMUM AMOUNT OF ORGANIC MATTER.

THAMES.			LEA.		
Year.	Elements of Organic Matter in parts per 100,000.	Months in which maximum pollution occurred.	Year.	Elements of Organic Matter in parts per 100,000	Months in which maximum pollution occurred.
1868	·45	January.	1868	·27	February.
1869	·60	February.	1869	·33	February.
1870	·42	January.	1870	·30	January.
1871	·52	October.	1871	·22	February.
1872	·48	Jan. and Dec.	1872	·39	December.
1873	·46	January.	1873	·33	January.
1874	·37	March.	1874	·21	March.
1875	·49	November.	1875	·28	November.
1876	·44	December.	1876	·24	March.
1877	·40	January.	1877	·30	January.
1878	·36	December.	1878	·26	June.
1879	·38	February.	1879	·33	July.
1880	·42	October.	1880	·33	February.
1881	·34	February.	1881	·34	February.
1882	·37	November.	1882	·26	December.
1883	·32	January.	1883	·24	December.
1884	·27	February.	1884	·20	March.
1885	·35	November.	1885	·28	December.
1886	·30	December.	1886	·21	February.
1887	·34	January.	1887	·31	January.
1888	·30	December.	1888	·25	December.
1889	·29	January.	1889	·16	March.



MAXIMUM & MINIMUM PROPORTION OF ORGANIC MATTER IN RIVER LEA WATER.

(*B)

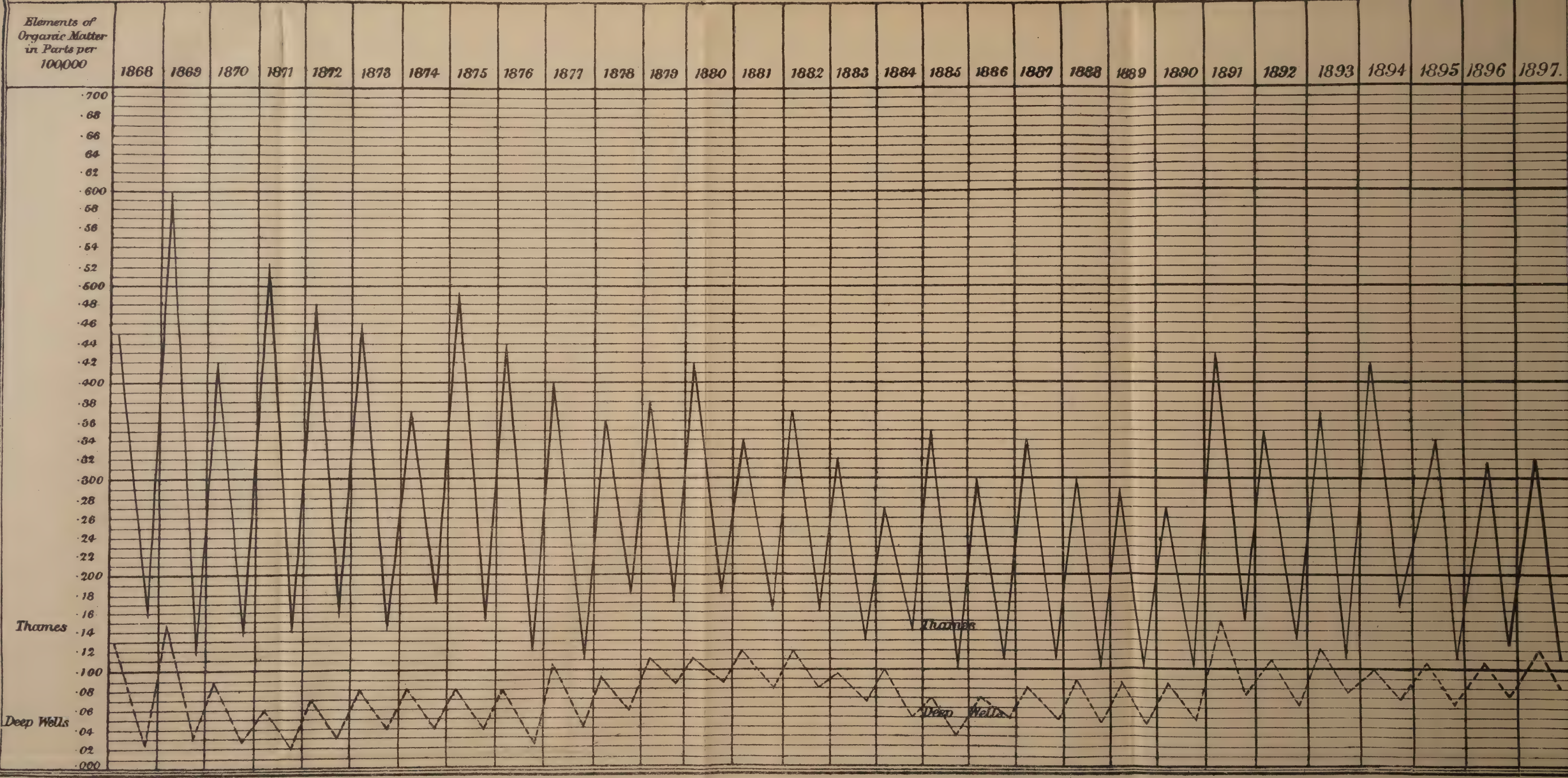
Elements of
Organic Matter
in Parts per
100,000.

1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897.

.700
.68
.66
.64
.62
.600
.58
.56
.54
.52
.500
.48
.46
.44
.42
.400
.38
.36
.34
.32
.300
.28
.26
.24
.22
.20
.18
.16
.14
.12
.100
.08
.06
.04
.02
.000

MAXIMUM AND MINIMUM PROPORTION OF ORGANIC MATTER IN WATER FROM THAMES AND DEEP WELLS.

(*A)



MAXIMUM AMOUNT OF ORGANIC MATTER—*continued.*

THAMES.			LEA.		
Year.	Elements of Organic Matter in parts per 100,000.	Months in which maximum pollution occurred.	Year.	Elements of Organic Matter in parts per 100,000.	Months in which maximum pollution occurred.
1890	·27	January.	1890	·19	January.
1891	·43	October.	1891	·27	November.
1892	·35	December.	1892	·27	December.
1893	·37	February.	1893	·23	March.
1894	·42	November.	1894	·22	November.
1895	·34	November.	1895	·22	December.
1896	·32	December.	1896	·20	January.
1897	·32	Jan. and Feb.	1897	·22	January.

It is thus evident that the comparatively large amount of organic matter in the Thames-derived water recorded in 1894 was not repeated in the last three years; indeed, the proportion was, in the last two years, lower than in any year since 1890. The maximum organic matter in the Lea was also the smallest observed since 1890 except that found in 1896 which was slightly lower.

The variations in the proportions of organic matter in the several supplies are exhibited graphically in the accompanying diagrams (A and B), in which the maximum and minimum proportions of organic matter present each year, on the average, in each of the three classes of waters since 1868 are registered.

Tables F and G, which record the proportions of ammonia and of nitrogen as nitrates and nitrites in the various waters, require no explanation.

In Table H is given the amount of combined nitrogen, both mineral and organic, found in each of the waters. This total amount is of importance, inasmuch as, after making a small correction for the combined nitrogen present in average rain water, it sums up the evidence of the nitrogenous organic matters which gained access to the water in the past, as well as of those which were still present at the time the analysis was made. In river and surface water generally, this total combined nitrogen undergoes a very appreciable reduction during the warmer months of the year, in consequence of the vegetable life which then abounds in such water. On this account, therefore, the total amount of combined nitrogen found in the river waters in winter can alone be regarded as bearing any relationship to the amount of nitrogenous matters which the waters have received.

The deep-well waters, on the other hand, are not subject to the influence of vegetable life, and the amount of total combined nitrogen is, therefore, equally indicative at all times of the year.

Hence, in the following table, the average proportion of total combined nitrogen, in the case of the Thames and the Lea, is given for the months of January, February, March, October, November, and December only; whilst, in the case of the deep wells, it is calculated for the whole year :—

Year.	Thames.	Lea.	Deep wells.
1886	·319	·336	·355
1887	·307	·352	·365
1888	·304	·322	·358
1889	·311	·358	·438
1890	·280	·296	·371
1891	·217	·247	·287
1892	·292	·332	·271
1893	·281	·314	·276
1894	·303	319	·293
1895	·319	·319	·295
1896	·236	·246	·298
1897	·293	·302	·346

A comparison of these numbers shows that the total combined nitrogen, both in the Thames and Lea, was higher than in the previous year. The deep-well waters also show a marked increase, the number being greater than that in any year since 1890. This increase in all three classes of waters is probably due to the scanty rainfall of 1897.

Table I exhibits the amount of chlorine present in each of the waters, and indicates that, on no occasion, has brackish or tidal water gained access to the companies' reservoirs. The amount of chlorine in the Thames-derived waters was, on the average, slightly less than in the year 1896, whilst the water delivered by the New River Company contained exactly the same, and that supplied by the East London Company slightly less in 1897 than in the previous year. Of the deep-well waters, that delivered by the Kent Company contained exactly the same, and that sent out by the Colne Valley Company slightly more, whilst the East London water contained a markedly smaller proportion in 1897 than in the previous year.

Table K gives the hardness of the various waters. The term "hardness" is used to denote the proportion of carbonate of lime or its equivalent of other soap-destroying substances, present in 100,000 parts by weight of water. The variations in hardness for the several descriptions of water during recent years are given in the following table :—

Year.	Thames.	Lea.	Kent.	Colne Valley.	East London Deep-well.
1885	18·7	20·0	27·9	4·8	—
1886	19·2	20·3	29·4	4·5	—
1887	19·3	20·8	29·9	5·7	—
1888	20·0	22·0	30·2	7·5	—
1889	20·2	22·1	29·9	7·0	—
1890	20·4	22·0	29·7	7·9	—
1891	20·3	21·8	29·4	8·9	18·9
1892	20·8	21·9	28·4	7·5	19·2
1893	19·6	21·4	28·3	7·1	20·2
1894	18·8	20·1	25·5	7·4	19·4
1895	19·4	21·1	26·7	7·3	20·4
1896	20·0	21·5	27·9	7·6	14·0
1897	19·6	21·7	27·6	7·5	19·0

There has thus been no variation of importance in the average hardness of the waters supplied from the Thames and Lea, or the deep wells of the Kent and Colne Valley Companies; but that furnished by the deep wells of the East London Company was, on the average, 5° harder in 1897 than in 1896, although still somewhat softer than any of the river-derived waters. The hardness of the Metropolitan water supply is due, almost entirely, to the presence of bicarbonate of lime in solution, which can be readily removed by treating the water with lime, as is so successfully done by the Colne Valley Company. Thus, the water pumped from the chalk by the Colne Valley Company is, originally, of about the same degree of hardness as the Kent Company's supply; but, by treatment with lime before delivery, its hardness is reduced to about one-fourth of its original amount. The hardness of the river-water supplies can be reduced in the same manner. This mode of softening must be the most economical, unless it can be shown that less than one-eightieth of the total supply is used for washing, since it entails only about one-eightieth of the expense incurred by the private consumer in the shape of additional soap.

Lastly, Table L records the averages, for the past year, of each analytical and thermal determination already referred to, and thus gives a general survey of the character of the water delivered by each Company during the year 1897.

In the following table are recorded the results of observations respecting the freedom from turbidity or otherwise of the various waters, and, for the purpose of comparison, the results of my first observations in 1868 are also included:—

Companies.	Number of occasions when clear and transparent.		Number of occasions when slightly turbid.		Number of occasions when turbid.		Number of occasions when very turbid.	
	1868.	1897.	1868.	1897.	1868	1897.	1868.	1897.
THAMES.								
Chelsea	7	12	2	0	1	0	2	0
West Middlesex	12	12	0	0	0	0	0	0
Southwark	1	12	5	0	4	0	2	0
Grand Junction	9	12	2	0	1	0	0	0
Lambeth... ..	6	12	1	0	2	0	3	0
LEA.								
New River	10	12	2	0	0	0	0	0
East London	3	12	8	0	1	0	0	0
DEEP WELLS.								
Kent	8	12	3	0	1	0	0	0
Colne Valley	—	11	—	1	—	0	—	0
East London	—	4	—	8	—	0	—	0

This table strikingly exhibits the great improvement which the Water Companies, who draw their supplies from rivers, have effected in filtration since I first began these examinations for turbidity in 1868. In that year, seven samples were so turbid as to be highly repulsive in appearance, nine were turbid, and no less than twenty slightly turbid; whereas, during the year 1897, no sample of filtered water was turbid in the slightest degree. On the other hand, nine samples of deep-well water, which does not usually require filtration, were slightly turbid, owing, in all probability, to disturbance by the pumping machinery.

The purest water in nature contains abundance of suspended matter; indeed, the beautiful blue colour of the purest Swiss lakes and of the Mediterranean is due to these very fine suspended matters which require years to subside and which no sand filter will remove, but which may be extracted in the chemist's laboratory, to some extent, though not completely, by filtration through specially prepared paper. This fine suspended matter, which is, of course, always present in the most efficiently filtered London waters, is under all ordinary circumstances absolutely invisible to the eye. The water is clear, bright, and transparent, but if a decanter of it be placed in a dark room and a ray of sunlight or electric light allowed to fall upon it, the water will be seen to be full of suspended particles which no sand or other practical filter is capable of removing, but which are partially arrested by a hard paper filter supported by a glass funnel. The amount of this suspended matter in the efficiently filtered river water supplied to the Metropolis rarely if ever exceeds 0·0002 grain in a tumblerful; and, therefore, in order to imbibe a single grain it would be necessary for the consumer to drink no less than 5,000 tumblersful of the water. Such excessively minute quantities of matter which is presumably harmless, may safely be neglected; indeed, it is impossible practically, to obtain water free from it.

TABLE A.

TEMPERATURE (in Centigrade degrees) of the METROPOLITAN WATERS, as delivered from the different Companies' Mains.

COMPANIES.	1897.												
	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.
THAMES.													
(Unfiltered Water) ..	4·7	3·8	6·0	7·3	12·7	16·2	18·5	20·0	13·7	10·1	7·5	4·5	10·4
Chelsea	5·3	4·3	6·5	8·3	12·0	16·0	18·6	20·1	14·8	11·2	8·8	6·4	11·0
West Middlesex ..	5·8	5·5	6·2	6·7	9·9	13·9	16·3	18·1	—	10·3	7·9	7·1	9·8
Southwark	6·2	6·2	6·4	8·4	13·5	16·3	18·5	20·6	14·9	11·5	9·2	8·1	11·7
Grand Junction ..	5·9	5·7	7·5	8·0	13·0	16·9	19·5	20·8	14·9	11·8	8·6	6·8	11·6
Lambeth	5·3	5·0	6·5	8·1	12·6	16·6	18·8	20·3	14·9	11·2	8·5	5·9	11·1
LEA.													
(Unfiltered Water) ..	5·3	6·4	7·2	7·9	12·6	15·9	17·9	17·0	13·6	9·5	6·8	7·2	10·6
New River	5·4	5·2	6·4	7·9	12·1	15·9	17·8	18·5	13·8	10·9	8·5	6·7	10·8
(Unfiltered Water) ..	5·1	6·7	5·9	7·9	12·2	16·4	17·8	19·5	14·0	10·0	6·2	6·1	10·7
East London	5·2	4·4	7·2	7·9	12·0	16·5	18·0	19·3	14·8	10·8	7·7	6·2	10·8
DEEP WELLS.													
Kent	13·5	11·2	11·0	13·5	12·3	13·2	13·3	13·6	12·9	12·8	11·8	13·0	12·7

TABLE B.

WEIGHT of SOLID MATTERS in 100,000 parts of the WATERS.

COMPANIES.	1897.												
	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.
THAMES.													
(Unfiltered Water) ..	34'00	28'80	30'16	31'80	27'88	28'24	28'04	26'92	27'60	30'44	31'64	32'24	29'81
Chelsea	32'56	33'08	26'94	26'80	27'06	24'82	25'16	24'08	24'54	27'30	29'94	29'36	27'64
West Middlesex ..	31'86	31'04	28'44	27'98	26'34	24'64	23'74	24'92	25'48	26'84	29'20	29'46	27'50
Southwark	32'40	30'58	28'58	28'82	26'00	25'92	25'86	25'80	25'68	28'82	31'08	31'80	28'45
Grand Junction ..	33'14	29'20	31'80	29'34	27'34	26'70	27'30	25'32	26'22	28'92	31'58	31'38	29'02
Lambeth	33'90	29'82	30'20	29'76	27'66	26'68	27'52	25'92	26'82	28'88	30'82	31'40	29'12
LEA.													
(Unfiltered Water) ..	30'44	31'96	31'72	30'72	29'92	30'32	31'64	33'20	32'00	32'28	33'88	34'04	31'84
New River	32'96	31'76	30'38	29'18	27'84	27'42	30'36	30'00	28'92	31'66	32'84	31'78	30'43
(Unfiltered Water) ..	38'20	38'60	38'72	32'64	30'76	31'96	33'60	29'12	34'96	35'28	38'40	41'08	35'28
East London	39'12	37'34	38'20	33'62	30'20	28'04	31'36	28'16	30'84	32'74	35'84	36'88	33'53
DEEP WELLS.													
Kent.	40'12	41'86	39'88	40'02	39'22	39'44	40'76	40'30	38'62	39'08	42'40	41'00	40'23
Colne Valley	21'82	21'24	20'70	20'44	19'72	22'42	21'16	17'76	18'58	17'40	18'08	16'42	19'65
East London	33'68	28'30	29'76	28'84	28'36	29'18	28'82	28'70	30'34	29'06	28'82	28'68	29'38

TABLE C.

ORGANIC CARBON in 100,000 parts of the WATERS.

COMPANIES.	1897.												
	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.
THAMES.													
(Unfiltered Water) ..	·354	·602	·392	·219	·217	·189	·269	·233	·222	·196	·158	·236	·274
Chelsea	·243	·161	·192	·159	·140	·114	·122	·106	·108	·097	·071	·079	·133
West Middlesex ..	·280	·263	·244	·139	·142	·093	·197	·113	·107	·118	·103	·104	·159
Southwark	·247	·354	·283	·136	·124	·120	·103	·117	·122	·172	·093	·133	·167
Grand Junction ..	·265	·302	·263	·168	·124	·108	·128	·115	·111	·114	·120	·127	·162
Lambeth	·259	·361	·274	·178	·138	·166	·127	·102	·139	·118	·072	·145	·168
LEA.													
(Unfiltered Water) ..	·202	·286	·191	·184	·155	·120	·139	·135	·114	·084	·077	·069	·146
New River	·160	·175	·162	·112	·068	·040	·048	·054	·071	·073	·032	·021	·065
(Unfiltered Water) ..	·259	·335	·266	·210	·218	·248	·189	·169	·224	·192	·153	·288	·229
East London	·231	·177	·179	·156	·118	·077	·093	·094	·106	·096	·086	·099	·126
DEEP WELLS.													
Kent	·020	·019	·053	·039	·037	·065	·038	·062	·044	·048	·032	·017	·039
Colne Valley	·177	·107	·111	·144	·119	·136	·147	·117	·081	·109	·078	·045	·114
East London	·049	·119	·151	·123	·093	·120	·106	·079	·096	·117	·079	·106	·103

TABLE D.
ORGANIC NITROGEN in 100,000 parts of the WATERS.

COMPANIES.		1897.												M
		Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
Inner Circle.	THAMES.													
	(Unfiltered Water) ..	'046	'076	'057	'027	'038	'034	'048	'036	'041	'034	'040	'041	'0
	Chelsea	'089	'021	'025	'020	'012	'011	'014	'013	'014	'019	'016	'013	'0
	West Middlesex ..	'082	'029	'022	'019	'016	'013	'014	'016	'010	'018	'023	'014	'0
	Southwark	'082	'039	'024	'017	'014	'013	'011	'014	'014	'022	'026	'021	'0
	Grand Junction ..	'081	'031	'028	'020	'013	'011	'013	'017	'015	'019	'019	'023	'0
Outer Circle.	Lambeth	'085	'042	'037	'022	'013	'015	'018	'013	'017	'018	'019	'029	'0
	LEA.													
	(Unfiltered Water) ..	'039	'058	'032	'027	'029	'026	'028	'022	'016	'013	'014	'017	'0
	New River	'021	'028	'013	'012	'012	'009	'009	'008	'009	'010	'011	'009	'0
	(Unfiltered Water) ..	'053	'057	'033	'036	'035	'040	'030	'023	'035	'015	'032	'058	'0
	East London	'030	'029	'017	'016	'014	'017	'015	'015	'014	'016	'016	'017	'0
Outer Circle.	DEEP WELLS.													
	Kent	'005	'006	'009	'009	'008	'008	'009	'015	'008	'008	'007	'005	'0
	Colne Valley	'020	'014	'015	'017	'025	'018	'013	'012	'017	'024	'027	'013	'0
	East London	'013	'016	'011	'019	'012	'010	'011	'012	'008	'010	'013	'008	'0

TABLE E.

PROPORTIONAL AMOUNT of ORGANIC ELEMENTS, that in the KENT COMPANY'S WATER during the Nine Years ending December 1876 being taken as 1.

COMPANIES.		1897.												M
		Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
Inner Circle.	THAMES.													
	(Unfiltered Water) ..	6'8	11'4	7'6	4'2	4'3	3'8	5'4	4'6	4'5	3'9	3'4	4'7	
	Chelsea	4'8	3'1	3'7	3'0	2'6	2'1	2'3	2'0	2'1	2'0	1'5	1'6	
	West Middlesex ..	5'3	4'9	4'5	2'7	2'7	1'8	1'9	2'2	2'0	2'3	2'1	2'0	
	Southwark	4'7	6'6	5'2	2'6	2'3	2'3	1'9	2'2	2'3	3'3	2'0	2'6	
	Grand Junction ..	5'0	5'6	4'9	3'2	2'3	2'0	2'4	2'2	2'1	2'3	2'4	2'5	
Outer Circle.	Lambeth	5'0	6'8	5'3	3'4	2'6	2'0	2'5	1'9	2'6	2'3	1'5	2'9	
	LEA.													
	(Unfiltered Water) ..	4'1	5'7	3'8	3'6	3'1	2'5	2'8	2'7	2'2	1'6	1'5	2'0	
	New River	3'1	3'4	2'9	2'1	1'4	0'8	1'0	1'1	1'4	1'4	0'7	0'5	
	(Unfiltered Water) ..	5'3	6'6	5'1	4'2	4'3	4'9	3'7	3'3	4'4	3'5	3'1	5'9	
	East London	4'4	3'5	3'3	2'9	2'2	1'6	1'8	1'8	2'0	1'9	1'7	2'0	
Outer Circle.	DEEP WELLS.													
	Kent	0'4	0'4	1'1	0'8	0'8	1'2	0'8	1'3	0'9	0'9	0'7	0'4	
	Colne Valley	3'3	2'0	2'1	2'7	2'4	2'6	2'7	2'2	1'6	2'3	1'8	1'0	
	East London	1'1	2'3	2'7	2'4	1'8	2'2	2'0	1'5	1'8	2'2	1'6	1'9	

TABLE F.

AMMONIA in 100,000 parts of the WATERS.

COMPANIES.		1897.												M
		Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
Inner Circle.	THAMES.													
	(Unfiltered Water) ..	'010	'008	'010	'006	'005	'010	'012	'004	'004	'008	'014	'012	
	Chelsea	0	0	0	0	0	0	0	0	0	0	0	0	
	West Middlesex ..	0	0	0	0	0	0	0	0	0	0	0	0	
	Southwark	0	0	0	0	0	0	0	0	0	0	0	0	
	Grand Junction ..	0	0	0	0	0	0	0	0	0	0	0	0	
Outer Circle.	Lambeth	0	0	0	0	0	0	0	0	0	0	0	0	
	LEA.													
	(Unfiltered Water) ..	'006	'010	'008	'004	'003	'006	'010	'003	'003	'006	'005	'007	
	New River	0	0	0	0	0	0	0	0	0	0	0	0	
	(Unfiltered Water) ..	'018	'018	'014	'016	'006	'010	'014	'005	'006	'016	'009	'044	
	East London	0	0	0	0	0	0	0	0	0	0	0	0	
Outer Circle.	DEEP WELLS.													
	Kent	0	0	0	0	0	0	0	0	0	0	0	0	
	Colne Valley	'014	'018	'020	'032	'032	'028	'055	'020	'002	'016	'016	'062	
	East London	'060	'024	'008	'016	'022	'014	'016	'016	'028	'016	'014	'014	

TABLE G.
NITROGEN as NITRATES and NITRITES in 100,000 parts of the WATERS.

COMPANIES.	1897.												
	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.
THAMES.													
(Unfiltered Water) ..	·294	·220	·236	·262	·244	·229	·168	·142	·163	·202	·279	·240	·223
Chelsea	·289	·336	·290	·282	·254	·244	·151	·134	·179	·196	·242	·252	·237
West Middlesex ..	·277	·291	·284	·241	·268	·252	·143	·125	·132	·177	·224	·258	·223
Southwark	·292	·267	·304	·244	·186	·263	·131	·154	·165	·214	·269	·270	·230
Grand Junction ..	·286	·267	·296	·268	·258	·263	·212	·136	·199	·212	·321	·293	·251
Lambeth	·325	·281	·313	·242	·279	·248	·178	·127	·193	·209	·274	·281	·246
LEA.													
(Unfiltered Water) ..	·406	·403	·388	·350	·265	·223	·189	·177	·209	·219	·277	·293	·283
New River	·331	·265	·268	·259	·236	·256	·142	·137	·186	·213	·271	·282	·237
(Unfiltered Water) ..	·317	·370	·410	·322	·265	·177	·251	·162	·240	·256	·370	·390	·294
East London	·336	·316	·309	·301	·268	·281	·175	·130	·214	·224	·282	·309	·262
DEEP WELLS.													
Kent	·425	·483	·425	·417	·508	·426	·422	·400	·413	·456	·496	·456	·444
Colne Valley	·627	·516	·694	·526	·498	·440	·549	·493	·390	·474	·498	·488	·516
East London	·021	·019	trace	0	trace	trace	0	·003	0	0	trace	·009	·004

TABLE H.
TOTAL combined NITROGEN in 100,000 parts of the WATERS.

COMPANIES.	1897.												Mean.
	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
THAMES.													
(Unfiltered Water) ..	·348	·302	·301	·294	·286	·271	·226	·181	·207	·243	·330	·291	·273
Chelsea	·328	·357	·315	·302	·266	·255	·165	·147	·193	·215	·258	·265	·255
West Middlesex ..	·309	·320	·306	·260	·284	·265	·157	·141	·142	·195	·247	·272	·241
Southwark	·324	·306	·328	·261	·200	·276	·142	·168	·179	·236	·295	·291	·250
Grand Junction ..	·317	·298	·324	·288	·271	·274	·225	·153	·214	·231	·340	·316	·271
Lambeth	·360	·323	·350	·264	·292	·263	·196	·140	·210	·227	·293	·310	·269
LEA.													
(Unfiltered Water) ..	·450	·469	·426	·380	·296	·254	·205	·201	·227	·237	·295	·316	·296
New River	·352	·293	·281	·271	·248	·265	·151	·145	·195	·223	·283	·291	·249
(Unfiltered Water) ..	·385	·442	·451	·371	·305	·225	·293	·189	·280	·284	·410	·484	·343
East London	·366	·345	·326	·317	·282	·298	·190	·145	·228	·240	·298	·326	·280
DEEP WELLS.													
Kent	·430	·489	·434	·426	·516	·434	·431	·415	·421	·464	·503	·461	·452
Colne Valley	·659	·545	·725	·569	·549	·481	·607	·521	·409	·511	·538	·552	·556
East London	·083	·035	·017	·032	·050	·021	·024	·028	·031	·023	·025	·029	·031

TABLE I.
CHLORINE in 100,000 parts of the WATERS.

COMPANIES.	1897.												
	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.
THAMES.													
(Unfiltered Water) ..	1·8	1·7	1·7	1·7	1·7	1·8	1·8	1·9	1·9	1·9	1·9	2·0	1·8
Chelsea	1·9	1·7	1·7	1·7	1·7	1·8	1·7	1·7	1·8	1·8	1·9	1·8	1·8
West Middlesex ..	1·8	1·7	1·8	1·7	1·7	1·8	1·7	1·8	1·8	1·8	1·8	1·8	1·8
Southwark	1·8	1·6	1·7	1·7	1·7	1·7	1·8	1·8	1·8	1·9	1·9	1·9	1·8
Grand Junction ..	1·9	1·7	1·8	1·7	1·7	1·7	1·8	1·8	1·9	1·9	1·9	1·9	1·8
Lambeth	1·9	1·8	1·8	1·7	1·8	1·8	1·7	1·8	1·8	1·8	1·9	1·9	1·8
LEA.													
(Unfiltered Water) ..	1·8	1·8	1·8	1·8	1·8	1·8	1·8	1·9	1·8	1·8	1·7	1·8	1·8
New River	1·8	1·7	1·8	1·8	1·8	1·9	1·8	1·9	1·8	1·6	1·7	1·7	1·8
(Unfiltered Water) ..	2·2	2·0	1·9	1·9	1·9	1·8	1·9	2·1	2·0	2·0	2·0	2·3	2·0
East London	2·0	1·9	1·9	1·9	1·9	1·9	1·9	2·1	1·9	2·0	2·0	2·1	2·0
DEEP WELLS.													
Kent	2·4	2·4	2·6	2·5	2·4	2·6	2·4	2·5	2·4	2·3	2·3	2·4	2·4
Colne Valley	2·4	2·1	2·2	2·0	2·3	2·4	2·5	2·4	2·4	2·3	2·1	2·1	2·3
East London	2·3	2·3	2·4	2·2	2·1	2·3	2·4	2·2	2·1	2·3	2·1	2·2	2·4

TABLE K.

DEGREES of HARDNESS (1 deg. = 1 part of Carbonate of Lime or its equivalent) in 100,000 parts of the
WATERS.

COMPANIES.		1897.												Me
		Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
Inner Circle.	THAMES.													
	(Unfiltered Water) ..	22·7	18·5	21·8	22·7	19·7	18·5	17·4	16·3	18·3	20·0	22·4	22·4	20·0
	Chelsea	23·0	22·4	20·3	20·0	19·1	18·0	16·9	16·3	16·3	19·7	21·2	21·5	18·0
	West Middlesex ..	22·7	21·2	20·9	20·6	18·5	18·0	17·1	16·6	16·9	19·1	20·9	21·2	19·0
	Southwark	23·0	20·3	20·9	20·9	18·5	18·5	17·1	17·4	17·1	20·6	22·1	22·4	19·0
	Grand Junction ..	23·3	19·1	21·5	21·5	19·7	17·7	17·4	16·9	16·9	20·3	21·8	21·8	19·0
	Lambeth	23·0	19·7	21·5	21·5	20·3	18·3	17·4	16·9	17·1	20·9	21·2	22·1	20·0
	LEA.													
	(Unfiltered Water) ..	23·3	22·4	22·7	21·8	20·6	20·3	18·6	20·6	21·8	24·2	24·5	24·5	25·0
	New River	23·3	21·8	22·4	22·1	20·6	18·3	19·4	18·9	18·9	22·1	21·2	23·0	21·0
Outer Circle.	(Unfiltered Water) ..	25·7	25·1	25·7	23·9	22·1	21·2	20·9	20·9	22·7	24·8	27·2	27·5	23·0
	East London	26·3	24·5	23·6	23·3	20·9	19·4	20·0	17·4	20·0	23·6	25·1	25·1	25·0
	DEEP WELLS.													
	Kent	28·7	28·4	28·4	28·7	27·8	28·1	26·6	25·4	25·4	27·5	28·1	28·7	27·0
	Colne Valley	9·0	8·6	8·3	8·4	8·4	7·7	7·3	7·3	6·0	5·7	6·7	6·0	10·0
	East London	21·5	20·3	20·9	20·0	15·7	18·8	16·6	17·7	19·4	18·6	18·9	19·1	18·0

TABLE L.

AVERAGES for 1897.

The NUMBERS in the TABLE relate to 100,000 parts of each WATER.

COMPANIES.		Temperature in Centigrade Degrees.	Total Solid Matters.	Organic Carbon.	Organic Nitrogen.	Ammonia.	Nitrogen as Nitrates and Nitrites.	Total combined Nitrogen.	Chlorine.	Total Hardness.	Proportional Amount of Organic Elements that in the Kent Company's
Inner Circle.	THAMES.	°									
	(Unfiltered)	10·4	29·81	·274	·043	·009	·223	·273	1·8	20·1	5·0
	Chelsea	11·0	27·64	·133	·018	0	·237	·255	1·8	19·6	2·0
	West Middlesex ..	9·8	27·50	·159	·019	0	·223	·241	1·8	19·5	2·0
	Southwark	11·7	28·45	·167	·021	0	·250	·250	1·8	19·9	3·0
	Grand Junction ..	11·6	29·02	·162	·020	0	·251	·271	1·8	19·1	3·0
	Lambeth	11·1	29·12	·168	·023	0	·246	·269	1·8	20·0	3·0
	LEA.										
	(Unfiltered Water) ..	10·6	31·84	·146	·027	·006	·283	·296	1·8	22·1	3·0
	New River	10·8	30·43	·085	·013	0	·237	·249	1·8	21·0	1·0
Outer Circle.	(Unfiltered)	10·7	35·28	·229	·037	·015	·294	·343	2·0	24·0	4·0
	East London	10·8	33·53	·129	·018	0	·262	·280	2·0	22·4	2·0
	DEEP WELLS.										
	Kent	12·7	40·23	·039	·008	0	·444	·452	2·4	27·6	0·0
	Colne Valley	—	19·65	·114	·018	·026	·516	·556	2·3	7·5	2·0
	East London	—	29·38	·103	·012	·021	·004	·031	2·4	19·0	2·0

NOTE.—The numbers in these tables can be converted into grains per imperial gallon by multiplying them by 7 then moving the decimal point one place to the left.

BACTERIOSCOPIC EXAMINATION.

Whilst there is no water in nature either chemically pure or free from suspended matter, neither is there any available for the wants of man *biologically* pure. It is true that, on rare occasions, samples have been drawn from beneath the filter beds, or from the deep wells of a water company absolutely free from microbes and their germs; yet it is practically impossible to convey such water to the consumer in this sterile condition. During its passage through the mains it becomes again inhabited by crowds of living organisms.

The bacterioscopic examination of water used for dietetic purposes has, of late years, assumed great importance in hygiene. It has demonstrated that the domestic use of water, which has been neither naturally nor artificially filtered, is attended with great risk to life, if that water has been exposed to excremental pollution; whereas water, even much contaminated with pathogenic microbes, may be drunk with safety if previously submitted to efficient sand filtration. It has also supplied a test of efficiency, which is far more delicate than that contemplated by the Act of 1852, viz., freedom from opalescence, or visible particles in suspension; for this Parliamentary test may acquit a water which contains millions of microbes in a thimbleful.

These bacteriological investigations, however, have given rise to a widespread error as to the conclusions to be drawn from the bacterial condition of the filtered river waters supplied to the Metropolis. It has been assumed that if these waters contain many microbes they are necessarily unwholesome; or, at least, to be regarded with suspicion. In the case of the Metropolitan water supply, there is no foundation whatever for this conclusion. No pathogenic organism has ever been found in the water of the Thames or Lea at the intakes of the various water companies, and, *a fortiori*, never in their filtered supplies; and, in the absence of the pathogenic, there is no evidence whatever that ordinary river microbes, including *coli communis*, ever caused injury to health; they appear to be quite harmless. Nevertheless, if a pathogenic germ should at any time be present in the raw river water, it would be extremely unlikely to pass through an efficient filter removing 99 out of every 100 microbes present in the raw water.

The standard of 100 microbes per cubic centimetre, as an indication of efficient bacterial filtration, adopted by Dr. Koch and myself, is of course purely arbitrary. I consider it is a sufficient, but not unduly, severe test to apply to the filtration of the river-derived supplies of the London Water Companies; but I desire it to be distinctly understood that the infraction of this standard does not throw suspicion upon the wholesomeness of the water; neither do I consider that the presence of *B. coli communis* in water is a proof of sewage contamination; because this organism is one of the most ubiquitous and persistent of harmless microbes.

For the purposes of this report, the samples of water submitted to bacterioscopic examination were collected at the works of the respective companies immediately after the water left the filters and before it was pumped into the distributing mains. Occasionally also separate observations were made upon the effluents of individual filters, so as to ascertain whether they were doing their work efficiently. It is of little use examining the filtered water delivered in London, not only because it is a mixture of the effluents from many filters, but especially because the multiplication of ordinary river and harmless microbes is so rapid, that the number is generally increased many-fold between the filtration works and the standpipes in London.

By the examination of the water as it issues from the filters the utmost freedom from microbes, or maximum degree of sterility, of each sample of water is determined. This utmost freedom from bacterial life, after all sources of contamination have been passed, is obviously the most important moment in the history of the water, for the smaller the number of microbes found in a given volume at that moment, the less is the probability of pathogenic organisms being present; and, although the non-pathogenic may afterwards multiply indefinitely, this is of no consequence in the initial absence of the pathogenic. In this determination of maximum sterility, it is of the utmost importance that multiplication should be prevented during the few hours which, in the absence of suitable arrangements at the works of the different Companies, must necessarily elapse before the sample can be submitted to cultivation in my laboratory. This is secured by hermetically sealing the glass tubes containing the samples, and then packing them in ice. At the freezing point of water microbes either do not multiply at all, or do so with extreme slowness.

Although the collection of samples for microbe cultivation on the works of the seven different Water Companies drawing their supplies from rivers, these works being situated at wide distances apart, entails great additional labour, which can only be performed by an expert in bacteriology, it is the only trustworthy method by which the efficient filtration and comparative bacterial purity of the Metropolitan waters can be ascertained. Whenever this examination proves any filter to be working unsatisfactorily, the attention of the engineer in charge is at once directed to the circumstance.

Of collateral interest also is the contemporaneous bacterial condition of the Thames and Lea at the intakes of the Companies drawing from these rivers, and I have therefore submitted to examination samples of the unfiltered water passing the intakes of the various Companies at the time the filtered samples were collected. In addition, I have also examined samples of Thames and Lea water after more or less prolonged storage in subsidence reservoirs, but before filtration. In carrying out this tedious and delicate investigation, the Associated Metropolitan Water Companies have unreservedly placed their plant at my disposal, and their respective engineers have afforded me every facility in their power, for which I desire here to record my thanks.

I have again to call attention, however, to the great desirability for the establishment of small bacteriological laboratories at Hampton for the examination of the Thames-derived waters, and at Green Lanes and Lea Bridge for the examination of the very important supplies drawn from the Lea by the New River and East London Companies.

The deep-well water of the Kent Company does not require filtration, and the samples for microbe cultivation have therefore been taken from the water as it was discharged from the pumps.

In connection with this work, I have again to thank my chief assistant, Mr. W. T. Burgess, F.I.C., for his very efficient help in the prosecution of this laborious investigation.

The results of these examinations made during the year 1897 are contained in the following Tables; and, in order that the conditions as regards storage and filtration, under which the seven Companies drawing from rivers work, I have added in each case the amount of storage before filtration, the depth of sand on the filter beds, and the rate of filtration. These additional data are taken from the monthly reports of the Water Examiner:—

TABLE NO. 1.—MICROBE DETERMINATIONS IN UNFILTERED WATER.

SOURCE OF SAMPLE.	JANUARY.		FEBRUARY.		MARCH.		APRIL.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Thames at Hampton ..	4.7	12,200	3.8	39,960	6.0	50,560 {	7.3 12.2	11,560 { 26,640 }
Ditto after storage (10 days) by Chelsea Co.	4.6	2540	—	—	6.2	580	9.1	100
Ditto ditto (7 days) by West Middlesex Co.	4.7	10,240	—	—	5.9	5,320	6.8	1,360
Ditto ditto (19.4 days) by West Middlesex Co.	4.7	5,320	—	—	—	—	—	—
Ditto arriving at Kew from Hampton Grand Junc. Co.	5.4	3,020	—	—	6.1	8,320	7.9	1,540
Ditto passing to filters 2—6 at Kew Grand Junc. Co.	5.4	1,760	4.8	14,080	5.9	4,640	7.9	1,360
Ditto from "New" storage reservoir, Southwark Co.	—	—	2.8	3,480	—	—	—	—
Ditto after storage for 5.6 days. Lambeth Co.	5.2	9,960	—	—	5.8	46,400	7.8	4,160
New River Cut just before entering storage reservoirs.	5.3	3,600	6.4	14,500	7.2	22,160	7.9	9,220
Ditto ditto after passing storage reservoirs.	4.9	3,200	5.3	21,800	{ 6.4 8.9 }	{ 15,320 1,420 }	7.7	1,500
River Lea at Angel Road, East London Co.'s intake.	5.1	16,320	6.7	44,600	6.3	64,000	6.9	11,000
Ditto after storage for 20.3 days. East London Co.	—	—	4.3	1,050	6.5	16,520	7.9	2,860

SOURCE OF SAMPLE.	MAY.		JUNE.		JULY.		AUGUST.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Thames at Hampton ..	12.7	8,840	16.2	10,300	18.5	3,020	20.0	2,460
Ditto after storage (10 days) by Chelsea Co.	12.5	540	16.0	840	19.0	500	20.3	620
Ditto ditto (7 days) by West Middlesex Co.	—	— {	16.3 15.8	640 680 }	18.7	1,880	—	—
Ditto ditto (19.4 days) by West Middlesex Co.	11.5	580	15.3	260	—	—	20.8	640
Ditto arriving at Kew from Hampton Grand Junc. Co.	12.7	1,060	16.7	600	19.5	840	21.0	700
Ditto passing to filters 2—6 at Kew Grand Junc. Co.	12.8	440	16.9	460	19.5	1,320	21.1	1,300
Ditto from "New" storage reservoir, Southwark Co.	—	—	—	—	—	—	—	—
Ditto after storage for 5.6 days. Lambeth Co.	—	—	17.3	1,320	18.8	2,280	20.2	940
New River Cut just before entering storage reservoirs.	12.6	2,020	15.9	2,320	17.9	1,800	17.0	1,740
Ditto ditto after passing storage reservoirs.	12.4	520	16.7	680	17.9	360	18.5	280
River Lea at Angel Road, East London Co.'s intake.	12.2	11,240	16.4	14,000	17.8	3,720	19.5	3,400
Ditto after storage for 20.3 days. East London Co.	11.4	1,280	16.9	2,740	—	—	19.4	1,560

SOURCE OF SAMPLE.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Thames at Hampton ..	13°7	3,620	10°1	16,700	7°5	5,940	4°5	18,000	16,133
Ditto after storage (10 days) by Chelsea Co.	14°8	660	10°8	2,240	8°2	296	5°0	2,820	1,068
Ditto ditto (7 days) by West Middlesex Co.	—	—	—	—	—	—	—	—	3,353
Ditto ditto (194 days) by West Middlesex Co.	14°2	780	10°2	460	8°0	820	5°2	1,980	1,355
Ditto arriving at Kew from Hampton Grand Junc. Co.	14°7	1,700	—	—	8°5	3,020	5°9	2,980	2,378
Ditto passing to filters 2—6 at Kew Grand Junc. Co.	14°7	1,000	10°6	1,360	8°5	1,480	5°8	1,880	2,590
Ditto from "New" storage reservoir, Southwark Co.	—	—	—	—	—	—	—	—	3,480
Ditto after storage for 5·6 days. Lambeth Co.	14°3	1,840	10°7	1,300	8°2	2,280	4°8	7,720	7,820
New River Cut just before entering storage reservoirs.	13°6	2,220	9°5	2,100	6°8	3,900	7°2	6,340	5,993
Ditto ditto after passing storage reservoirs.	13°8	1,260	9°7	640	7°3	1,360	6°0	2,720	3,923
River Lea at Angel Road, East London Co.'s intake.	14°0	4,760	10°0	1,820	6°2	11,320	6°1	42,400	19,048
Ditto after storage for 30·3 days. East London Co.	13°8	1,460	10°3	1,500	6°7	3,280	5°4	12,480	4,473

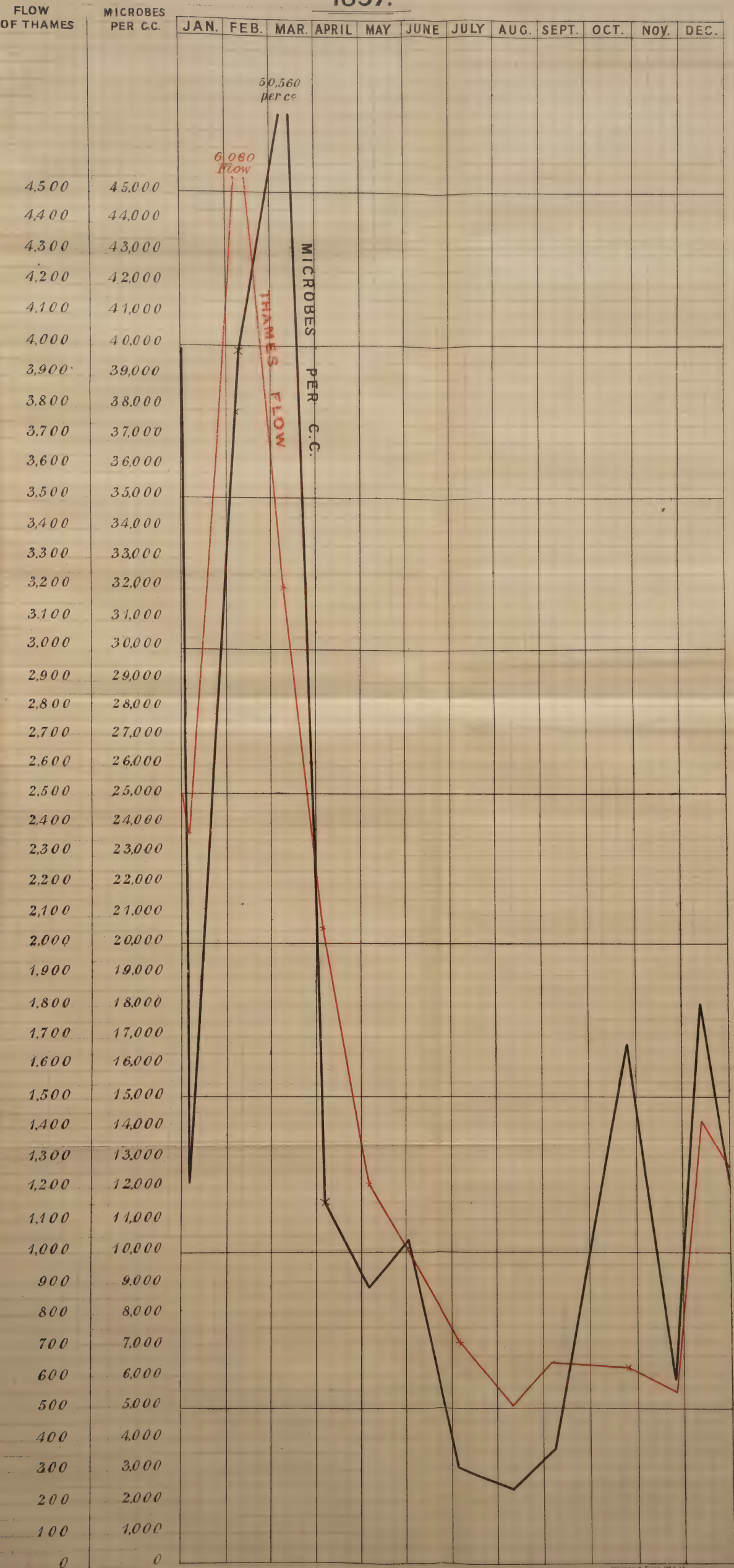
These results of the bacterioscopic examination of the unfiltered waters used by the Metropolitan Companies are very instructive; they again show the remarkable effect of storage in reducing the number of bacteria. Thus, in March last, whilst the Thames at the intakes of the Companies drawing their supplies from that river contained 50,560 microbes per c.c., the Chelsea Company, with 10 days' storage, were supplying their filters with water containing only 580 microbes in the same volume. Again, in February, the East London Company, with 20 days' storage, kept the number down to 1,050 per c.c., although 44,600 per c.c. were passing the intake at Angel Road.

This table also exhibits the very great variations in microbial life, which occur in the raw river waters in the course of the year. These variations have been attributed, at different times, to changes of temperature or exposure to varying amounts of sunshine, low temperature appearing to favour either the multiplication or the preservation of microbes, whilst exposure to sunshine has been shown, by Dr. Marshall Ward, to be very inimical to bacterial life. I have proved, however, that, in rivers like the Thames, these influences have little or no effect upon bacterial life, the number of microbes in a given volume of Thames water being practically governed by the rainfall, that is to say, by the volume of the stream.

The following Table and Diagram No. 5 show this effect of rainfall upon the number of microbes very conclusively. They compare the volume of water in the river, as gauged at Teddington Weir, with the number of microbes found in the raw Thames water at Hampton on the same day. In this diagram, the numbers representing the flow of the river in millions of gallons per 24 hours, and the numbers of microbes per c.c. of water, both run from the diagram upwards, and are represented by the ordinates; whilst the abscissæ denote the months in which the several determinations were made. For the gauging of the Thames at Teddington Weir, I am indebted again to the kindness of Mr. C. J. More, the Engineer to the Thames Conservancy

DIAGRAM Nº 5.

1897.



Board ; but, in the diagram, 100 millions of gallons are added to the daily flow, this being, approximately, the volume of water taken out of the river above Teddington Weir by the Water Companies. Comparing the two columns of numbers in the table, and the two curves on the diagram, there will be found a remarkably close relation between these numbers and curves respectively. This year's observations, therefore, confirm the conclusion arrived at from similar observations carried on during the four preceding years. And what is true of the Thames, in this respect, is doubtless true also approximately of the Lea and other rivers.

COMPARISON OF NUMBER OF MICROBES WITH VOLUME OF THE THAMES JUST ABOVE THE INTAKES OF THE WATER COMPANIES.

DATE.	Flow of River in Gallons daily.	No. of Microbes per c.c.	DATE.	Flow of River in Gallons daily.	No. of Microbes per c.c.
January 5th	2,370,700,000	12,200	July 5th	714,800,000	3,020
February 8th	6,060,500,000	39,960	August 10th	509,600,000	2,460
March 10th	3,196,600,000	50,560	September 7th	653,700,000	3,620
April 5th	2,057,900,000	11,560	October 26th	632,800,000	16,700
May 5th	1,223,200,000	8,840	November 24th	550,100,000	5,940
June 1st	1,015,700,000	10,300	December 13th	1,429,000,000	18,000

The following Tables represent the bacterial condition of the water issuing from the filter beds of the various Metropolitan Companies during the year 1897, comparing it with the raw material dealt with by these Companies.

The Chelsea Company.

Amount of storage	10 days.
Average thickness of sand on filters	4 feet.
Average rate of filtration per square foot	1.75 gallon.
Maximum percentage of microbes removed	99.97
Minimum percentage of microbes removed	94.00
Average percentage of microbes removed	98.96

TABLE No. 2.—MICROBE DETERMINATIONS IN CHELSEA COMPANY'S WATER.

SOURCE OF SAMPLE.	JANUARY.		FEBRUARY.		MARCH.		APRIL.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Thames at Hampton ..	4.7	12,200	3.8	39,960	6.0	50,560	12.2	26,640
" after storage ..	4.6	2,540	—	—	6.2	580	7.3	11,560
" after filtration ..	4.6	15	2.9	14	6.2	18	9.1	100
							9.7	161
SOURCE OF SAMPLE.	MAY.		JUNE.		JULY.		AUGUST.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Thames at Hampton ..	12.7	8,840	16.2	10,300	18.5	3,020	20.0	2,460
" after storage ..	12.5	540	16.0	840	19.0	500	20.3	620
" after filtration ..	12.1	10	16.4	36	19.5	46	20.2	8

SOURCE OF SAMPLE.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Thames at Hampton ..	13·7	3,620	10·1	16,700	7·5	5,940	4·5	18,000	16,138
„ after storage ..	14·8	660	10·8	2,240	8·2	296	5·0	2,820	1,067
„ after filtration ..	14·7	60	10·7	6	8·2	11	4·6	32	34

Except on April 5th, when the standard of 100 microbes per c.c. was somewhat infringed, this Company delivered water of uniformly excellent bacterial quality, rivalling, in many cases, deep-well water in this respect.

West Middlesex Company.

Amount of storage	... ..	19·4 days.
Average thickness of sand on filters	... ..	2·75 feet.
Average rate of filtration per square foot, per hour	... ..	1·33 gallon.
Maximum percentage of microbes removed	... ..	99·89
Minimum percentage of microbes removed	... ..	97·52
Average percentage of microbes removed	... ..	99·40

TABLE NO. 3.—MICROBE DETERMINATIONS IN WEST MIDDLESEX COMPANY'S WATER.

SOURCE OF SAMPLE.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Thames at Hampton ..	4·7	12,200	3·8	39,960	6·0	50,560	12·2 7·3	26,640 11,560	
„ after storage ..	4·7	5,320	—	—	5·9	5,320	6·8	1,360	
„ after filtration ..	4·3	48	2·9	216	5·5	109	6·5	19	
SOURCE OF SAMPLE.	MAY.		JUNE.		JULY.		AUGUST.		
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Thames at Hampton ..	12·7	8,840	16·2	10,300	18·5	3,020	20·0	2,460	
„ after storage ..	11·5	580	15·8	527	18·7	1,880	20·8	640	
„ after filtration ..	11·2	34	15·5	134	18·6	46	20·7	6	
SOURCE OF SAMPLE.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Thames at Hampton ..	13·7	3,620	10·1	16,700	7·5	5,940	4·5	18,000	16,138
„ after storage ..	14·2	780	10·2	460	8·0	820	5·2	1,980	1,788
„ after filtration ..	14·4	14	10·2	18	7·7	32	5·3	20	58

It will be seen from this table that, excepting in February, March, and June, this Company delivered water of excellent bacterial quality. During the year, the storage has been increased from 13·8 to 19·4 days, and has

proportionally improved the position of this Company as regards the circumvention of floods.

Southwark and Vauxhall Company.

Amount of storage	...	...	...	...	4.1 days.
Average thickness of sand on filters	...	...	...	...	2.5 feet.
Average rate of filtration per square foot per hour	...	...	...	...	1.5 gallon.
Maximum percentage of microbes removed	...	...	...	...	99.93
Minimum percentage of microbes removed	...	...	...	...	80.59
Average percentage of microbes removed	...	...	...	...	97.72

TABLE NO. 4.—MICROBE DETERMINATIONS IN SOUTHWARK COMPANY'S WATER.

SOURCE OF SAMPLE.	January.		February.		March.		April.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Waters at Hampton ..	4.7	12,200	3.8	39,960	6.0	50,560	{ 12.2 7.3	26,640 11,560
" No. 1 filter ..	4.3	2,368	—	—	—	—	—	—
" No. 2 filter ..	5.2	764	—	—	—	—	—	—
" No. 3 filter ..	—	—	—	—	—	—	—	—
" No. 4 filter ..	—	—	4.7	172	5.5	204	7.5	36
" No. 5 filter ..	—	—	—	—	—	—	7.0	144
" No. 6 filter ..	—	—	3.8	728	—	—	—	—
" No. 7 filter ..	—	—	—	—	5.5	1,396	—	—
" No. 8 filter ..	—	—	—	—	—	—	—	—
General supply at Hampton.	—	—	—	—	—	—	—	—

SOURCE OF SAMPLE.	May.		June.		July.		August.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Waters at Hampton ..	12.7	8,840	16.2	10,300	18.5	3,020	20.0	2,460
" No. 1 filter ..	—	—	16.0	84	—	—	—	—
" No. 2 filter ..	—	—	—	—	18.3	124	—	—
" No. 3 filter ..	—	—	—	—	18.2	120	—	—
" No. 4 filter ..	12.5	8	15.9	20	—	—	19.4	20
" No. 5 filter ..	12.8	144	—	—	—	—	—	—
" No. 6 filter ..	—	—	—	—	18.6	64	—	—
" No. 7 filter ..	—	—	—	—	—	—	19.5	54
" No. 8 filter ..	—	—	—	—	—	—	—	—
General supply at Hampton.	—	—	16.2	246	18.5	40	19.4	38

SOURCE OF SAMPLE.	September.		October.		November.		December.		Mean.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Thames at Hampton ..	13'7	3,620	10'1	16,700	7'5	5,940	4'5	18,000	14,138
" No. 1 filter ..	—	—	—	—	—	—	—	—	1,226
" No. 2 filter ..	—	—	—	—	—	—	—	—	444
" No. 3 filter ..	—	—	—	—	—	—	4'5	270	195
" No. 4 filter ..	13'5	72	9'7	12	7'7	32	—	—	64
" No. 5 filter ..	—	—	—	—	—	—	—	—	144
" No. 6 filter ..	—	—	10'0	124	—	—	—	—	305
" No. 7 filter ..	—	—	—	—	—	—	—	—	725
" No. 8 filter ..	13'8	244	—	—	7'7	80	4'2	36	120
General supply at Hamp- ton.	14'3	84	10'2	40	7'9	34	—	—	80

The filtration plants of the Chelsea and West Middlesex Companies deliver the filtered water into general receptacles or wells from which the samples for bacterioscopic examination were drawn, and there was consequently no opportunity, at these works, for obtaining separate samples from each of the filter beds. At the Southwark Company's works, however, I have been able to obtain samples from several separate filters, and the above table, giving the results of examination of these samples, shows several cases in which effective bacterial filtration was not attained. Thus, filters Nos. 1 and 2 were not working satisfactorily in January, No. 3 in July and December, Nos. 4 and 6 in February and No. 4 in March, No. 5 in April and May, No. 7 in March, and No. 8 in September; whilst the general supply of filtered water from Hampton infringed the standard of 100 microbes per c.c. in June. Although the water sent out by this Company was invariably clear and bright, thus complying with the Parliamentary standard of efficient filtration, it infringed the bacterial standard in 14 out of 30 samples examined.

Grand Junction Company.

Amount of storage	3'4 days.
Average thickness of sand on filters	2'25 feet.
Average rate of filtration per square foot per hour ...	1'8 gallon.
Maximum percentage of microbes removed	99'92
Minimum percentage of microbes removed	89'33
Average percentage of microbes removed	98'46

TABLE NO. 5.—MICROBE DETERMINATIONS IN GRAND JUNCTION COMPANY'S WATER.

SOURCE OF SAMPLE.	January.		February.		March.		April.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Thames at Hampton ..	4'7	12,200	3'8	39,960	6'0	50,560	12'2 7'3	26,640 11,560
Stored water from Hamp- ton.	5'4	3,020	—	—	6'1	8,320	7'9	1,540
Stored water feeding filters 2-6 at Kew.	5'4	1,760	4'8	14,080	5'9	4,640	7'9	1,360
General filter well at Hampton.	4'8	194	3'7	3,304	5'9	2,416	7'5	216
General filter well at Kew	5'2	88	4'3	122	5'9	228	6'9	56
South filter well at Kew ..	5'9	24	4'5	406	—	—	7'8	34

SOURCE OF SAMPLE.	May.		June.		July.		August.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Water at Hampton ..	12.7	8,840	16.2	10,300	18.5	3,020	20.0	2,460
Filtered water from Hampton.	12.7	1,060	16.7	600	19.5	840	21.0	700
Filtered water feeding filters at Kew.	12.8	440	16.9	460	19.5	1,320	21.1	1,300
General filter well at Hampton.	13.2	120	15.5	22	18.6	100	20.0	34
General filter well at Kew	12.0	214	16.7	198	19.0	92	20.7	24
South filter well at Kew ..	12.4	42	16.6	22	19.0	22	—	—

SOURCE OF SAMPLE.	September.		October.		November.		December.		Mean.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Water at Hampton ..	13.7	3,620	10.1	16,700	7.5	5,940	4.5	18,000	16,138
Filtered water from Hampton.	14.7	1,700	—	—	8.5	3,020	5.9	2,980	2,378
Filtered water feeding filters at Kew.	14.7	1,000	10.6	1,360	8.5	1,480	5.8	1,880	2,590
General filter well at Hampton.	14.3	32	10.2	102	7.7	162	4.8	772	623
General filter well at Kew	14.6	22	10.5	14	8.2	100	5.9	40	100
South filter well at Kew ..	14.8	16	—	—	8.4	14	5.1	44	96

The small amount of storage possessed by this Company renders it difficult at all times to maintain efficient bacterial filtration, and nine out of the twelve samples of filtered water collected at the Hampton works during the year contained an excess of microbes or their spores over 100 per c.c.; the most serious infractions occurring in February and March. Five out of the 21 samples collected at the Kew Works also contained an abnormal number. If all the filters could be made to work as well as the South filter at Kew, this Company would have an excellent record.

Lambeth Company.

Amount of storage	...	...	...	...	5.6 days.
Average thickness of sand on filters	...	...	...	...	2.75 feet.
Average rate of filtration per square foot per hour	...	...	...	...	1.8 gallon.
Maximum percentage of microbes removed	...	...	...	...	99.89
Minimum percentage of microbes removed	...	...	...	...	98.81
Average percentage of microbes removed	...	...	...	...	99.50

TABLE No. 6.—MICROBE DETERMINATIONS in LAMBETH COMPANY'S WATER.

SOURCE OF SAMPLE.	JANUARY.		FEBRUARY.		MARCH.		APRIL.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Water at Hampton ..	4.7	12,200	3.8	39,960	6.0	50,580	12.2 7.3	26,640 11,560
" after storage ..	5.2	9,960	—	—	5.8	46,400	7.8	4,160
" " filtration ..	5.3	66	4.0	262	5.9	312	7.8	26

SOURCE OF SAMPLE.	MAY.		JUNE.		JULY.		AUGUST.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Thames at Hampton ..	12.7	8,840	16.2	10,300	18.5	3,020	20.0	2,460
" after storage ..	—	—	17.3	1,320	18.8	2,280	20.2	940
" " filtration ..	13.0	36	16.8	22	19.0	36	19.8	20

SOURCE OF SAMPLE.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Thames at Hampton ..	13.7	3,620	10.1	16,700	7.5	5,940	4.5	18,000	16,138
" after storage ..	14.3	1,840	10.7	1,300	8.2	2,280	4.8	7,720	7,820
" " filtration ..	14.4	20	10.8	20	8.2	16	4.5	58	75

Excepting in February and March, this Company delivered water of excellent bacterial quality. Altogether, the record is very good, and is free from violent fluctuations. It would be still further improved by more storage, for sometimes the filters have to be fed with water containing as many as 46,400 microbes per c.c.

New River Company.

Amount of storage	4.7 days.
Average thickness of sand on filters	1.9 foot.
Average rate of filtration per square foot per hour ..	2.75 gallons.
Maximum percentage of microbes removed	100.00
Minimum percentage of microbes removed	95.61
Average percentage of microbes removed	99.09

TABLE NO. 7.—MICROBE DETERMINATIONS in NEW RIVER COMPANY'S WATER.

SOURCE OF SAMPLE.	JANUARY.		FEBRUARY.		MARCH.		APRIL.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
New River Cut before entering subsidence reservoirs.	5.3	3,600	6.4	14,500	7.2	22,160	7.9	9,220
New River Cut after leaving subsidence reservoirs.	4.9	3,200	5.3	21,800	{ 6.4 8.9 }	{ 15,320 1,420 }	7.7	1,500
New River after filtration:— General well	4.7	158	5.0	181	{ 5.9 8.7 }	{ 314 22 }	6.9	10
No. 1 " " " "	—	—	—	—	—	—	6.8	10
No. 2 " " " "	—	—	—	—	—	—	—	—
No. 3 " " " "	—	—	—	—	—	—	—	—
No. 4 " " " "	—	—	—	—	{ 6.2 8.7 }	{ 432 26 }	—	—
No. 5 " " " "	—	—	—	—	—	—	—	—
No. 6 " " " "	—	—	5.2	205	—	—	7.7	21
No. 7 " " " "	—	—	5.0	196	—	—	—	—
No. 8 " " " "	—	—	—	—	—	—	—	—
No. 9 " " " "	—	—	—	—	{ 6.1 8.7 }	{ 156 56 }	—	—

SOURCE OF SAMPLE.	MAY.		JUNE.		JULY.		AUGUST.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
ew River Cut before entering subsidence reservoirs.	12°6	2,020	15°9	2,320	17°9	1,800	17°0	1,740
ew River Cut after leaving subsidence reservoirs.	12°4	520	16°7	680	17°9	360	18°5	280
ew River after filtration:—								
General well	12°1	24	15°8	12	18°0	14	18°2	4
No. 1 " " " "	—	—	15°8	20	—	—	—	—
No. 2 " " " "	11°9	12	—	—	—	—	18°0	12
No. 3 " " " "	—	—	16°4	8	—	—	18°3	12
No. 4 " " " "	12°8	16	—	—	—	—	—	—
No. 5 " " " "	—	—	—	—	—	—	—	—
No. 6 " " " "	—	—	—	—	—	—	—	—
No. 7 " " " "	—	—	—	—	18°3	20	—	—
No. 8 " " " "	—	—	—	—	—	—	—	—
No. 9 " " " "	—	—	—	—	18°2	24	—	—

SOURCE OF SAMPLE.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
ew River Cut before entering subsidence reservoirs.	13°6	2,220	9°5	2,100	6°8	3,900	7°2	6,340	5,993
ew River Cut after leaving subsidence reservoirs.	13°8	1,260	9°7	640	7°3	1,360	6°0	2,720	3,928
ew River after filtration:—									
General well	13°6	44	10°0	8	7°0	40	6°2	26	66
No. 1 " " " "	—	—	—	—	—	—	5°9	56	29
No. 2 " " " "	—	—	—	—	—	—	—	—	12
No. 3 " " " "	—	—	—	—	—	—	—	—	10
No. 4 " " " "	13°8	80	—	—	—	—	—	—	138
No. 5 " " " "	—	—	—	—	—	—	6°5	12	12
No. 6 " " " "	—	—	—	—	7°2	16	—	—	81
No. 7 " " " "	—	—	—	—	—	—	—	—	108
No. 8 " " " "	13°6	12	—	—	—	—	—	—	12
No. 9 " " " "	—	—	—	—	6°5	0	—	—	59

This table shows that out of 35 samples of filtered water collected during the year, only seven transgressed the standard of 100 microbes per c.c., whilst one was absolutely sterile. All the seven transgressions occurred in the first three months of the year, when the raw water was in bad bacterial condition, and when extensive alterations were being made in the filtration plant. The samples collected on eight occasions from the general filter well will bear comparison, in respect of bacterial purity, with the deep well water of the Kent Company.

East London Company.

Amount of storage	...	...	...	...	25.0 days.
Average thickness of sand on filters	...	...	...	...	2.0 feet.
Average rate of filtration per square foot per hour	...	...	...	...	1.33 gallon.
Maximum percentage of microbes removed	...	...	...	...	99.96
Minimum percentage of microbes removed	...	...	...	...	97.12
Average percentage of microbes removed	...	...	...	...	99.24

TABLE NO. 8.—MICROBE DETERMINATIONS IN EAST LONDON COMPANY'S WATER.

SOURCE OF SAMPLE.	JANUARY.		FEBRUARY.		MARCH.		APRIL.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Lea at Angel Road intake..	5.1	16,320	6.7	44,600	6.3	64,000	6.9	11,000
" after storage	4.3	lost	4.3	1,050	6.5	16,520	7.9	2,860
" " filtration, No. 1 Essex well.	4.2	126	4.0	96	6.0	136	6.9	180
" " " No. 2 Essex well.	4.3	274	4.1	132	6.2	38	7.1	92
" " " Middle- sex well.	—	—	3.8	50	6.2	112	7.0	260

SOURCE OF SAMPLE.	MAY.		JUNE.		JULY.		AUGUST.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
Lea at Angel Road intake..	12.2	11,240	16.4	14,000	17.8	3,720	19.5	3,400
" after storage	11.4	1,280	16.9	2,740	—	—	19.4	1,560
" " filtration, No. 1 Essex well.	11.3	96	16.3	34	17.5	38	19.0	52
" " " No. 2 Essex well.	11.3	28	16.1	54	17.6	22	18.8	16
" " " Middle- sex well.	11.1	50	16.3	26	17.8	62	19.4	96

SOURCE OF SAMPLE.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
Lea at Angel Road intake..	14.0	4,760	10.0	1,820	6.2	11,320	6.1	42,400	19,049
" after storage	13.8	1,460	10.3	1,500	6.7	3,280	5.4	12,480	4,473
" " filtration, No. 1 Essex well.	13.6	44	9.7	8	6.5	238	5.5	234	123
" " " No. 2 Essex well.	13.5	14	9.7	10	6.7	18	5.9	16	59
" " " Middle- sex well.	13.8	48	10.1	22	7.2	16	5.8	100	109

From this table it is seen that, out of 35 samples of filtered water, nine contained a number of microbes in excess of the standard. Almost all these infractions occurred when the Lea, at the intake, was in very bad bacterial

condition. Indeed, the raw material with which this Company had to deal during ten months of the year was, bacterially, of worse quality than that treated by any other Metropolitan Water Company. The attention of the Lea Conservancy Board ought to be directed to the disgraceful condition of the river at Angel Road in this respect. There are doubtless discharges entering the river above this point which ought to be stopped.

This Company has increased its storage during the year from 20 to 30 days' supply ; nevertheless, in December last, such was the bad quality of the raw water that, even after this lengthened storage, it still contained 12,480 microbes per c.c.

Kent Company.

This Company supplies only deep-well water, which is delivered in a clear and bright condition to consumers as it is pumped from the wells. It requires neither storing nor filtration. The water probably always arrives at the wells absolutely free from microbes, the small number per c.c. usually found being doubtless derived from accidental and unavoidable contamination by the pumping machinery. In eight out of twelve examinations made during the year, the number of bacteria per c.c. did not exceed five, and in November it contained only one. Even this water, however, infringed the standard once, for in March the sample yielded on cultivation 139 microbes per c.c.

TABLE NO. 9.—MICROBE DETERMINATIONS IN KENT COMPANY'S WATER.

SOURCE OF SAMPLE.	JANUARY.		FEBRUARY.		MARCH.		APRIL.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
"ew" well at Deptford ..	11'4	73	11'3	32	11'3	139	11'3	15

SOURCE OF SAMPLE.	MAY.		JUNE.		JULY.		AUGUST.	
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.
"ew" well at Deptford ..	11'3	5	11'3	3	11'3	4	11'3	4

SOURCE OF SAMPLE.	SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		MEAN.
	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	Temp. C.	Microbes per c.c.	
"ew" Well at Deptford ..	11'3	4	11'3	2	11'3	1	11'3	5	24

In all the foregoing illustrations of the comparative efficiency of the filtration plants of the various Metropolitan Companies, comparison has been made between the microbial contents of the raw river waters and the filter effluents ; but, as the Companies enjoy the advantage of storage in very

different degrees, and one of them (the Grand Junction) partially employs preliminary filtration, it is obvious that this comparison does not correctly indicate the comparative efficiency of the various filtration plants in the removal of microbes, although it correctly indicates the total bacterial improvement effected by the operations of the various Companies, for the whole of which they deserve the credit. It is, however, both of interest and importance in regard to the construction of filters, to separate the improvement produced by final sand filtration from that brought about by storage or preliminary filtration.

In the following tables, therefore, I have compared the bacterial quality of the water supplied to the filters with that of the effluents issuing from them, and have given in a separate column the percentage of microbes still present in the effluent from each filter. It is hoped that such a record of the actual bacterial work performed by each filter will afford valuable information to the engineers of the different Metropolitan Companies supplying river waters.

I have also added a table intended to show the effect of the degree of fineness of sand upon bacterial filtration. In the third column of this table the size of the grains of sand is indicated by the percentage which will pass through a copper gauze sieve of 1,600 meshes to the square inch, the maximum diameter of grains capable of passing this sieve being just under 0.4 millimetre.

The Southwark Company could not be included in the tables, because at the works of this Company it is impossible to collect, for bacteriological cultivation, satisfactory samples of the water supplying the filters.

Chelsea Company.

Reduction of Micro-organisms by filtration alone.

Month.	Organisms per c.c.		Percentage of Organisms left in.
	Before filtration.	After filtration.	
January	2,540	15	0.6
February	—	14	—
March	580	18	3.1
April	—	—	—
May	540	10	1.8
June	840	36	4.3
July	500	46	9.2
August	620	8	1.3
September	660	60	9.1
October	2,240	6	0.3
November	296	11	3.7
December	2,820	32	1.1
Mean	1,067	23	3.4

West Middlesex Company.

Reduction of Micro-organism by filtration alone.

Month.	Organisms per c.c.		Percentage of Organisms left in.
	Before filtration.	After filtration.	
January	5,320	48	0·9
February	—	216	—
March	5,320	109	2·0
April	1,360	19	1·4
May	580	34	5·9
June	470	12	2·6
July	1,880	46	2·4
August	640	6	0·9
September	780	14	1·8
October	460	18	3·9
November	820	32	3·9
December	1,980	20	1·0
Mean	1,783	48	2·3

Grand Junction Company (General Filter Well at Kew Bridge Works).

Reduction of Micro-organisms by actual filtration.

Month.	Organisms per c.c.		Percentage of Organisms left in.
	Before filtration.	After filtration.	
January	1,760	88	5·0
February	14,080	122	0·9
March	4,640	228	4·9
April	1,360	56	4·1
May	440	214	48·6
June	460	198	43·0
July	1,320	92	7·0
August	1,300	24	1·8
September	1,000	22	2·2
October	1,360	14	1·0
November	1,480	100	6·7
December	1,880	40	2·1
Mean	2,590	100	7·0

Lambeth Company.

Reduction of Micro-organisms by actual filtration.

Month.	Organisms per c.c.		Percentage of Organisms left in.
	Before filtration.	After filtration.	
January	9,960	66	0·7
February	—	262	—
March	46,400	312	0·8
April	4,160	26	0·6
May	—	36	—
June	1,320	22	1·7
July	2,280	36	1·6
August	940	20	2·1
September	1,840	20	1·1
October	1,300	20	1·5
November	2,280	16	0·7
December	7,720	58	0·7
Mean	7,820	75	1·2

New River Company (General Filter Well).

Reduction of Micro-organisms by actual filtration.

Month.	Organisms per c.c.		Percentage of Organisms left in.
	Before filtration.	After filtration.	
January	3,200	158	5·0
February	21,800	181	0·8
March	15,320	314	3·0
	1,420	22	1·5
April	1,500	10	0·7
May	520	24	4·6
June	680	12	1·8
July	360	14	3·9
August	280	4	1·4
September	1,260	44	3·5
October	640	8	1·2
November	1,360	40	3·0
December	2,720	26	1·0
Mean	3,928	66	2·3

East London Company (Mean of 3 Filter Wells).

Reduction of Micro-organisms by actual filtration.

Month.	Organisms per c.c.		Percentage of Organisms left in.
	Before filtration.	After filtration.	
January	—	200	—
February	1,050	93	8·9
March	16,520	95	0·6
April	2,860	177	6·2
May	1,280	58	4·5
June	2,740	38	1·4
July... ..	—	41	—
August	1,560	55	3·5
September	1,460	35	2·4
October	1,500	13	0·9
November	3,280	91	2·8
December	12,480	117	0·9
Mean	8,873	97	3·2

Degree of Fineness of Sand.

Company.	Thickness of Sand.	Percentage of Sand of less than 0·4 mm.	Percentage of Organisms left in.
THAMES—			
Chelsea	4·0 feet	26·10	3·4
West Middlesex	2·75 „	78·19	3·1
Grand Junction	2·25 „	28·70	7·0
LEA—			
New River	1·9 „	60·26	2·3
East London	2·0 „	33·12	3·2

The comparison made in the last table strikingly exhibits the enormous advantage of fine sand in securing efficient bacterial filtration. Thus, 1·9 foot of the fine sand of the New River Company and 2·75 feet of that of the

West Middlesex Company are respectively more efficient than four feet of the coarser material used by the Chelsea Company. It is true that the West Middlesex Company filters somewhat more slowly than the Chelsea Company; but, on the other hand, the filtration rate of the New River Company is considerably greater than that of the Chelsea Company. Indeed, the rate of filtration adopted by the New River Company is considerably higher than that of any other Metropolitan Water Company, and yet the bacterial efficiency of this Company's filters is very satisfactory.

I am, &c.,

E. FRANKLAND.

The Registrar-General, &c., &c.,
Somerset House, W.C.

FIRES IN LONDON DURING THE YEAR 1897.

The Chief Officer of the Metropolitan Fire Brigade reported to the London County Council that the number of fires attended during 1897 was 3500, being 116 less than the number in the preceding year, but exceeding by 600 the average in the ten years 1887-96. According to this report the lives of 226 persons were seriously endangered, and 87 of these were lost. The numbers of lives lost by fires in London in the four preceding years were 82, 82, 91, and 106 respectively.

The staff of the Metropolitan Fire Brigade at the end of the year was distributed at 59 land engine stations, 5 floating stations, 3 sub-stations, and 16 street stations; there were also 60 hose cart, 11 hose and ladder truck, and 205 fire-escape duties. The number of fire engines at these stations was 137, a decrease of 6 from the number in the previous years; 8 were floating steam engines, 59 land steam engines, and 70 manual engines. The authorised strength of the brigade included 867 firemen of all ranks. The cases of injury occurring in the brigade during the year were 111, against 115, 106, and 110 in the three preceding years.

Number of Fires and of False Alarms attended during the Eleven Years 1887-97, and in each Month of 1897.

YEARS AND MONTHS.				TOTAL CALLS.	FALSE ALARMS AND CHIMNEYS.	FIRES.				
						Serious.	Slight.	Total.	Per-centages.	
									Serious.	Slight.
1887..	..	..	..	3059	606	175	2188	2363	7'4	92'6
1888..	..	..	..	2693	705	121	1867	1988	6'1	93'9
1889..	..	..	..	3131	793	153	2185	2338	6'5	93'5
1890..	..	..	..	3546	991	153	2402	2555	6'0	94'0
1891..	..	..	..	4164	1272	193	2699	2892	6'7	93'3
1892..	..	..	..	4449	1303	177	2969	3146	5'6	94'4
1893..	..	..	..	4824	1414	180	3230	3410	5'3	94'7
1894..	..	..	..	4111	1050	151	2910	3061	4'9	95'1
1895..	..	..	..	4845	1212	142	3491	3633	3'9	96'1
1896..	..	..	..	4878	1262	122	3494	3616	3'4	96'6
1897	..	..	..	4652	1152	168	3332	3500	4'8	95'2
1897.	January	..	..	406	103	11	292	303	3'6	96'4
	February	..	..	334	93	9	232	241	3'7	96'3
	March	..	..	336	83	11	242	253	4'3	95'7
	April	..	..	354	98	12	244	256	4'7	95'3
	May	..	..	415	112	19	284	303	6'3	93'7
	June	..	..	413	90	14	309	323	4'3	95'7
	July	..	..	451	103	17	331	348	4'9	95'1
	August	..	..	404	98	22	284	306	7'2	92'8
	September	..	..	340	100	15	225	240	6'2	93'8
	October	..	..	356	84	10	262	272	3'7	96'3
	November	..	..	410	104	19	287	306	6'2	93'8
	December	..	..	433	84	9	340	349	2'6	97'4

